

# Walk Audit Report



SafeRoutes



Napa County

BROWNS VALLEY  
ELEMENTARY SCHOOL

# BROWNS VALLEY ELEMENTARY SCHOOL

1001 BUHMAN AVENUE  
NAPA, CA

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## ACKNOWLEDGEMENTS

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# EXECUTIVE SUMMARY

## THE NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

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

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

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

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

### WHY SAFE ROUTES TO SCHOOL?

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

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

Regularly walking or biking increases children's daily levels of physical fitness and improves their cardiovascular health<sup>e</sup>.

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

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

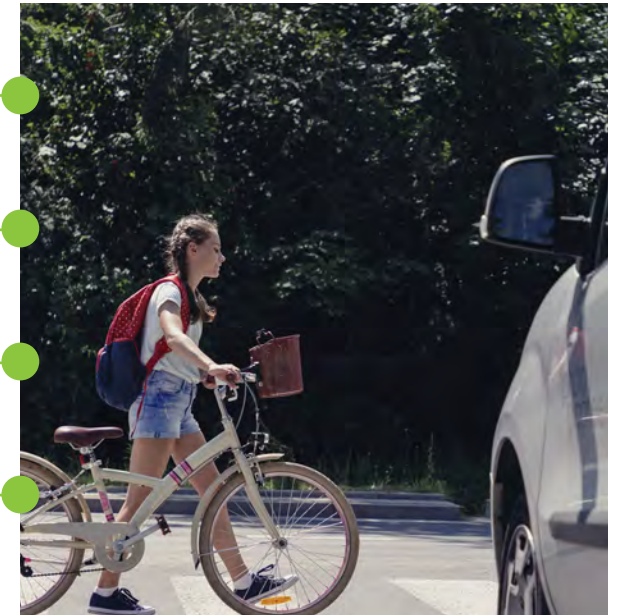
Schools and the community benefit immensely when students choose to walk or bike.

Student health has been linked to improved academic performance.

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

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

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



### THE SIX E'S

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

The current "Six E's" framework is described below. Although enforcement is no longer one of the "Six E's", a brief definition of enforcement is included, as it was part of the approach used by the Napa County SRTS program during the majority of the Walk Audit evaluation process. Enforcement statistics are not emphasized in this report, as this element needs more study and review.



#### Engagement

Listen to community members and work with existing community organizations.



#### Equity

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



#### Engineering

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



#### Encouragement

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



#### Education

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



#### Evaluation

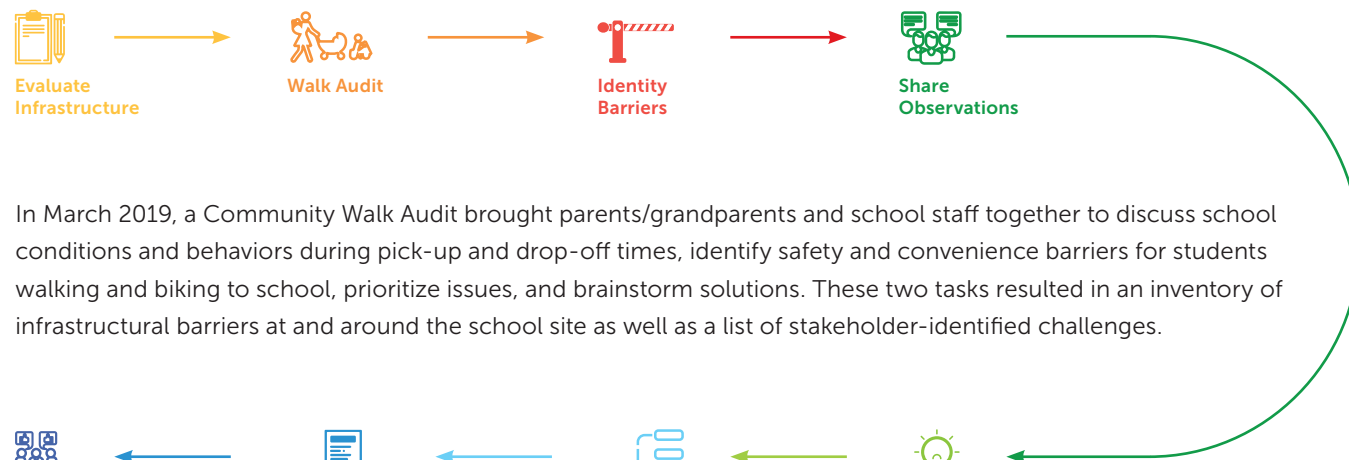
Track progress toward our shared safety goals, develop programs accordingly.

#### Enforcement (no longer an "E"):

Enforce traffic safety laws and school policies and target risky behaviors. No longer recommended as foundational to the start, maintenance, or growth of Safe Routes to School programs.

## REPORT PROCESS

The SRTS team conducted a comprehensive evaluation of the barriers to students walking and biking to and from Browns Valley Elementary School, starting in the summer of 2018. Information on physical and behavioral challenges was collected in two phases. In September 2018, the SRTS team completed an initial infrastructure audit of the school site and the surrounding neighborhood within a half-mile of the school. SRTS team members walked and rode bicycles throughout the school neighborhood, taking photographs of barriers and logging them into Fulcrum, a GPS-enabled data collection smartphone app.



In March 2019, a Community Walk Audit brought parents/grandparents and school staff together to discuss school conditions and behaviors during pick-up and drop-off times, identify safety and convenience barriers for students walking and biking to school, prioritize issues, and brainstorm solutions. These two tasks resulted in an inventory of infrastructural barriers at and around the school site as well as a list of stakeholder-identified challenges.



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

## BROWNS VALLEY ELEMENTARY SCHOOL SCHOOL SUMMARY

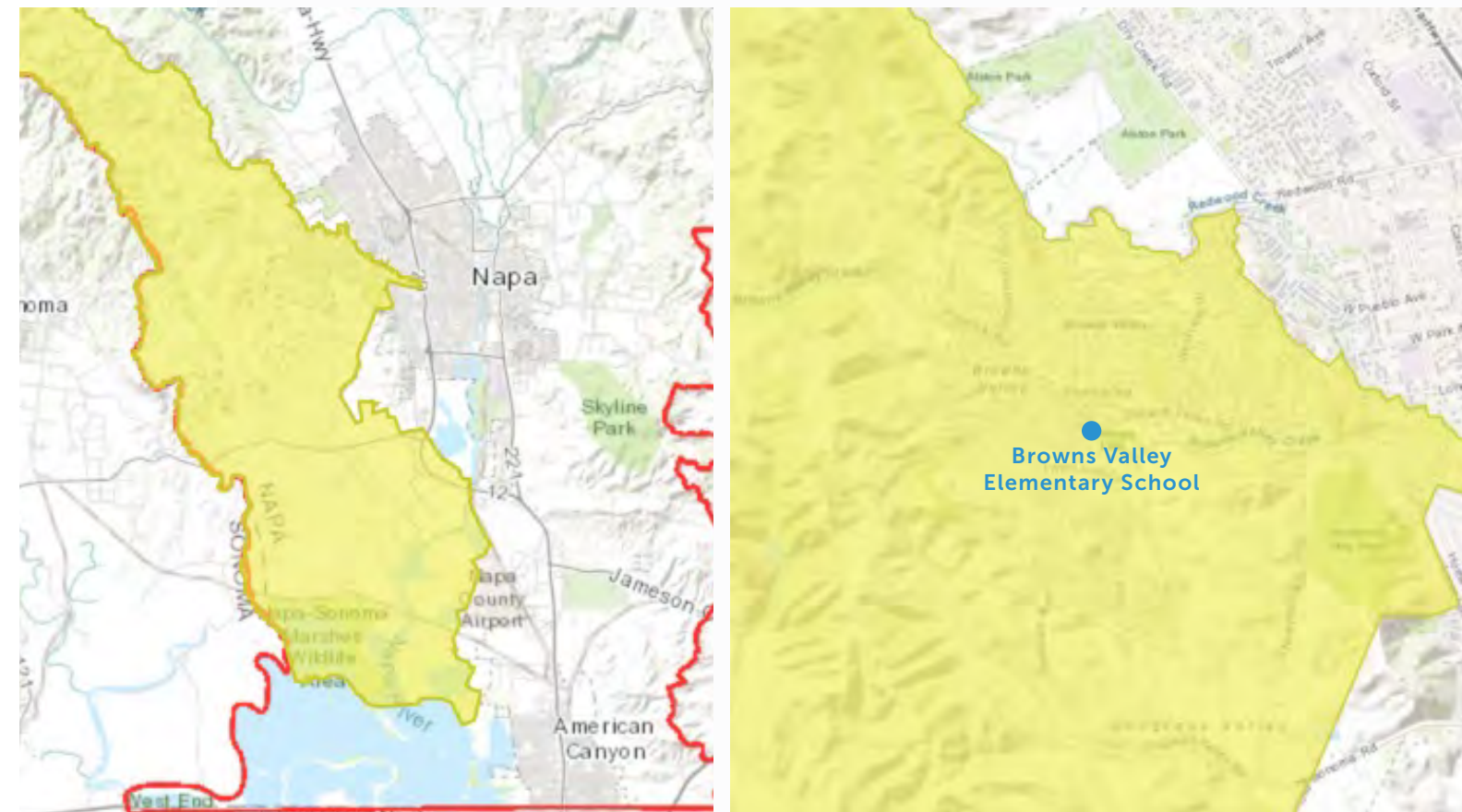
Principal	Frank Silva	Grades	K-5
First Bell	7:55 AM	Enrollment	525
Last Bell	2:25 PM (12:50 pm on Wed.)	Street	1001 Buhman Avenue
District	Napa Valley Unified	City	Napa, CA 94558

**Overall Facility Rating<sup>1</sup>: Good**

While NVUSD has an open enrollment policy, Browns Valley's default enrollment area covers the southwest edge of Napa County from just south of Yountville to the north edge of the Napa-Sonoma Marshes Wildlife Area, including the Browns Valley neighborhood in the City of Napa. The school serves students in the surrounding suburbs as well as nearby farms, vineyards, and remote residences on Mt. Veeder.

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

According to the most recent data (2020-21 school year), 25.9% of students attending Browns Valley Elementary reside outside of the school's enrollment boundary.



Map 1: Enrollment boundary for Browns Valley Elementary School, shaded in yellow.



## DATA

No data is currently available regarding the number of students who walk and bike to school at Browns Valley Elementary School. 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	BROWNS VALLEY ELEMENTARY SCHOOL	DISTRICT
Black or African American	0.4%	2.1%
American Indian or Alaska Native	0.2%	0.2%
Asian	1.5%	2.4%
Filipino	0.4%	6.9%
Hispanic or Latino	35.2%	54.9%
White	58.1%	29.2%
Native Hawaiian or Pacific Islander	0.0%	0.2%
Two or More Races	4.0%	3.9%
Not Reported	0.2%	0.3%

EXPERIENCE	BROWNS VALLEY ELEMENTARY SCHOOL	DISTRICT
Socioeconomically Disadvantaged	32.0%	50.7%
English Learners	15.6%	21.2%
Students with Disabilities	11.2%	11.5%
Foster Youth	0.6%	0.3%

Figure 2: Enrollment Data by Group

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

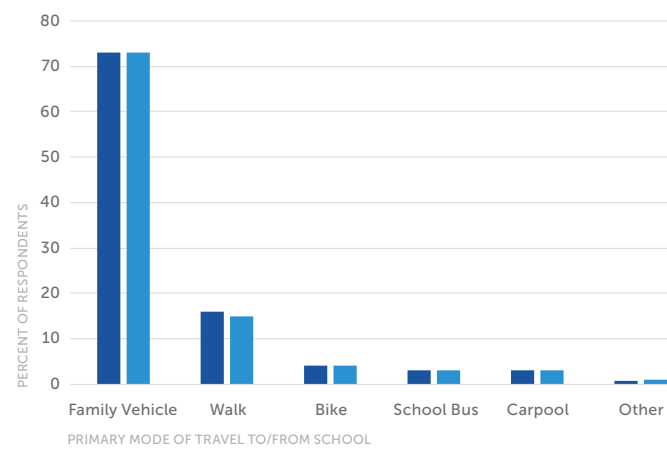


Figure 1: EMC Research Polling Results

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

### Student Enrollment by Grade Level (2019-2020)

	NUMBER OF STUDENTS
Kindergarten	91
Grade 1	89
Grade 2	81
Grade 3	79
Grade 4	92
Grade 5	93
<b>Total</b>	<b>525</b>

Figure 3: Enrollment Data by Grade

## NEIGHBORHOOD CONTEXT

Browns Valley Elementary School, located on Buhman Avenue in a single-family residential neighborhood, is part of the "Browns Valley Planning Area" located in west Napa. The school is bordered by Buhman Avenue, a collector, to the east, Browns Valley Road, a minor arterial, to the north, Meadowbrook Drive to the south, and Dellbrook Drive to the west. A row of houses sits between the school and Dellbrook Drive and Meadowbrook Drive, and a creek between the school and Browns Valley Road, so apart from a pedestrian path off of Dellbrook Drive, campus is only accessible from Buhman Avenue.

The school is surrounded almost exclusively by single-family homes, with larger estate homes further into the hills. The City of Napa's General Plan characterizes this residential region as "Post War Tract Subdivisions", defined by the uniformity of their platting patterns, street designs, and lot line setbacks. These neighborhoods have rows of single-family detached homes on small, individual lots, built in the 1960s and 1970s.

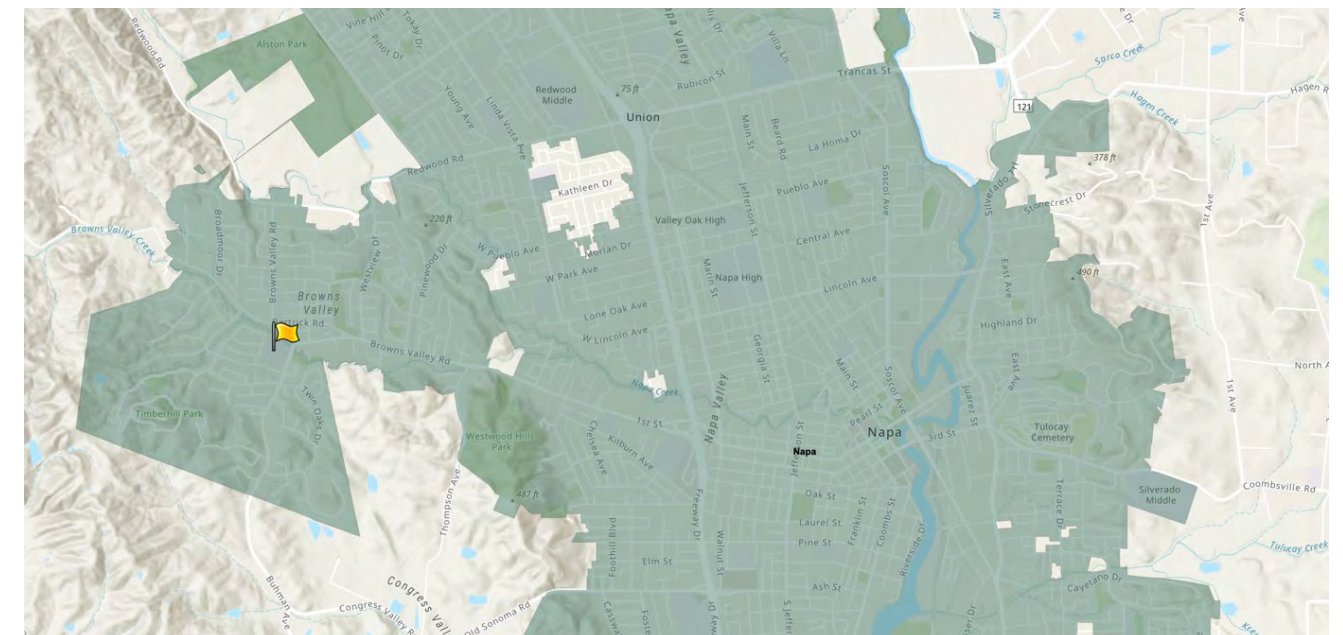
Most of the surrounding roads have curvilinear street patterns with plenty of loops and lollipops, which can reduce pedestrian route choice and interconnectivity and concentrate vehicle trips on the few existing arterials nearby. Further out from the school, the lots become larger and more irregular, with curvilinear street systems, primarily due to topography.

The school's facilities include a playground and a sports field, which are gated along Buhman Avenue with a small opening at the southwest corner. The campus is used after school hours for childcare, scout meetings, and sports activities.

Across from the school's entrance on Buhman Avenue is Buhman Park, which includes a paved path connecting to Meadowbrook Court and Round Hill Circle. The nearest commercial destination, Browns Valley Marketplace, is located 0.6 miles east of the school along Browns Valley Road. About 0.4 miles northeast of the school is Century Oaks Park, one of Napa's four Community Parks, which includes a baseball field, basketball court, picnic area.



Browns Valley Elementary School's primary entrance is on Buhman Avenue to the east.



Map 2: School Site Location in City.



# EXISTING CONDITIONS

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

## SITE CIRCULATION

The campus's front entrance is on Buhman Avenue, and there are two pedestrian paths that provide access to campus; one on the north side of the school parking lot and one just south of the parking lot. The school's small parking lot on Buhman Avenue is reserved for staff and does not allow parent use for pick-up and drop-off. The school can also be accessed from the neighborhoods to the west via a pedestrian path on Dellbrook Drive.

Browns Valley Elementary School distributes a School Safety and Traffic Patrol handout (see Figure 4) to parents to be signed and returned to the school. The handout is also available on their website. Through the handout, the school asks that children who are driven to school be dropped off and picked up at the curb in front of the school, around the corner on Browns Valley Road, or a block or two away from school, due to the limited space in the school parking lot. The school further manages circulation by using staff supervision during pick-up and drop-off time. Orange cones are placed along Buhman Avenue in front of the school's main building to prevent parents from parking along the red or white curbs or entering the school's parking lot.

An adult crossing guard and the school's Safety Patrol team help students cross the street safely. The Safety Patrol program, which is jointly sponsored by the school and the Napa City Police Department, selects interested and responsible fifth graders to help students cross the street in front of the school before and after school.



The pedestrian path to campus on the north side of the school parking lot on Buhman Avenue.



The pedestrian path from Dellbrook Drive acts as a back entrance to the school.



South entrance to Browns Valley Elementary School on Buhman Avenue.

**SCHOOL SAFETY AND TRAFFIC PATROL**

Dear Parents:

At the end of last year, the Browns Valley Traffic Patrol once again earned recognition for their success in maintaining the safety of the students traveling to and from our school. As always, their success, and ultimately the safety of the students, is dependent on the cooperation of the drivers and other adults who share the roads around our school with our students. In order to maintain their outstanding safety record, we ask that you observe these do's and don'ts:

**Please do:**

- Make eye contact with the traffic patrol members and the adult crossing guard as you approach the various controlled intersections around the school. This helps them determine when it is safe to cross students.
- Support the authority of traffic patrol officers by following the instructions of the crossing guards when you are on foot and avoid crossing the controlled intersections when the crossing guards are holding student traffic.

**Please don't:**

- Double park to drop off children. This is very dangerous as it impairs the vision of the traffic patrol officers and other drivers. Walking between cars also creates an unsafe situation for your child.
- Stop in the red zones or the entrance or exit to the school parking lot to drop off or pick up students. Doing so creates a dangerous situation for students and the crossing guards.
- Park in the white zone in front of the school. This adds to the already frustrating congestion on Buhman Street and encourages dangerous double parking by other drivers.
- Drop off or pick up students in the school parking lot. This includes the morning kindergartners being picked up after their day. Remember, the parking lot is closed to all but staff and school district traffic during school hours.

One good way to avoid the congestion on Buhman Street is to drop off and pick up your child on Partrick Road, Rowena, or Valley Glenn. With the help of our traffic safety patrol, your child will have a short and safe walk to school. If you have any questions, please feel free to contact the office. Thank you for your help and cooperation.

-----

After you have read this, please sign and return to the school.

Student's Name: \_\_\_\_\_

Parent's Signature: \_\_\_\_\_

Figure 4: School Safety and Traffic Patrol handout.

**Parking**

Browns Valley School's traffic and parking situation is difficult for everyone. We do not have enough parking spaces for the staff members that are here every day. Traffic congestion before and after school add to the frustration of staff and parents trying to pick up or drop off children promptly. There are no immediate solutions to these problems, but in the interest of student safety, we ask that you abide by the following rules:

1. Do not pull into the parking lot. Parking spaces are reserved for staff. We do not want children walking through the parking lot. The "standing room" is needed for school buses and day care vans.
2. Drop children off/meet them at the curb in front of the school, around the corner on Browns Valley Road, or a block or two away from school. Carpool. Walk. Be creative!
3. Double parking and u-turns in front of the school are illegal.
4. Do not park in the red zone. You may be ticketed.
5. Do not park in the white zone from 7:30-3:30. You may be ticketed. This is loading and unloading only and is reserved for the bus from 2:15-2:45 after school.

Figure 5: Parking Information

## BICYCLE AND PEDESTRIAN INFRASTRUCTURE

Browns Valley Elementary School provides bike parking on campus for students. There are three grid bike racks providing roughly 60 spaces; however, the racks are positioned against a fence, blocking half of the parking spaces from use.

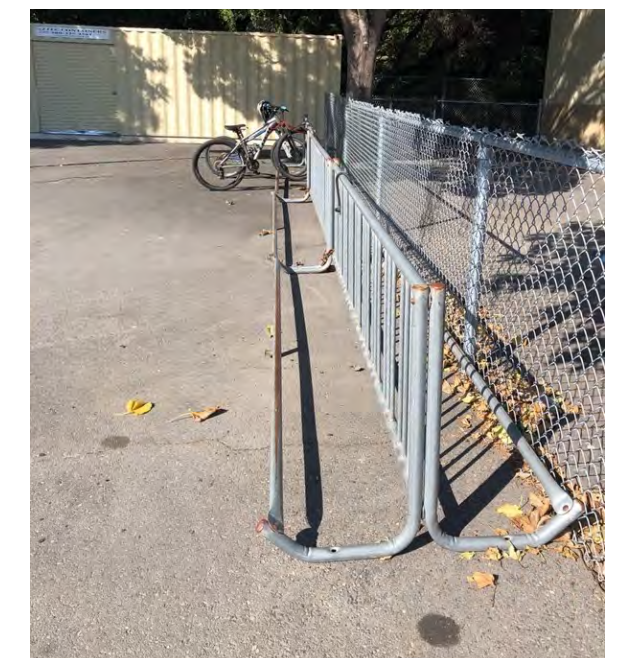
In addition to the School Safety and Traffic Patrol handout, information on parking and circulation behavior is provided in the school's General School Information document (see Figure 5).

As Browns Valley Road is the most direct route into the city of Napa and to Highway 29, motorists often turn around south of the school on Buhman Avenue after dropping off their student to get back to Browns Valley Road. Since U-turns on Buhman Avenue in front of the school are illegal and there is no simple loop back to Browns Valley Road south of the school, motorists use residential streets such as Meadowbrook Drive and Twin Oaks Drive to turn around. Many parents avoid the congested drop-off/pick-up line by parking along Browns Valley Road or other residential streets and walking their child to and from campus.



Browns Valley Road just east of the intersection at Buhman Avenue.

Limited bus service through NVUSD is available for Browns Valley Elementary students. There is only one major stop for this bus service at Napa Valley Language Academy. Students who live beyond 1.25 miles walking distance from school and attend their school of residence may apply for transportation through NVUSD. Bus service through The Vine transit, operated by the Napa Valley Transportation Authority, does not serve the area within a half-mile of the school.





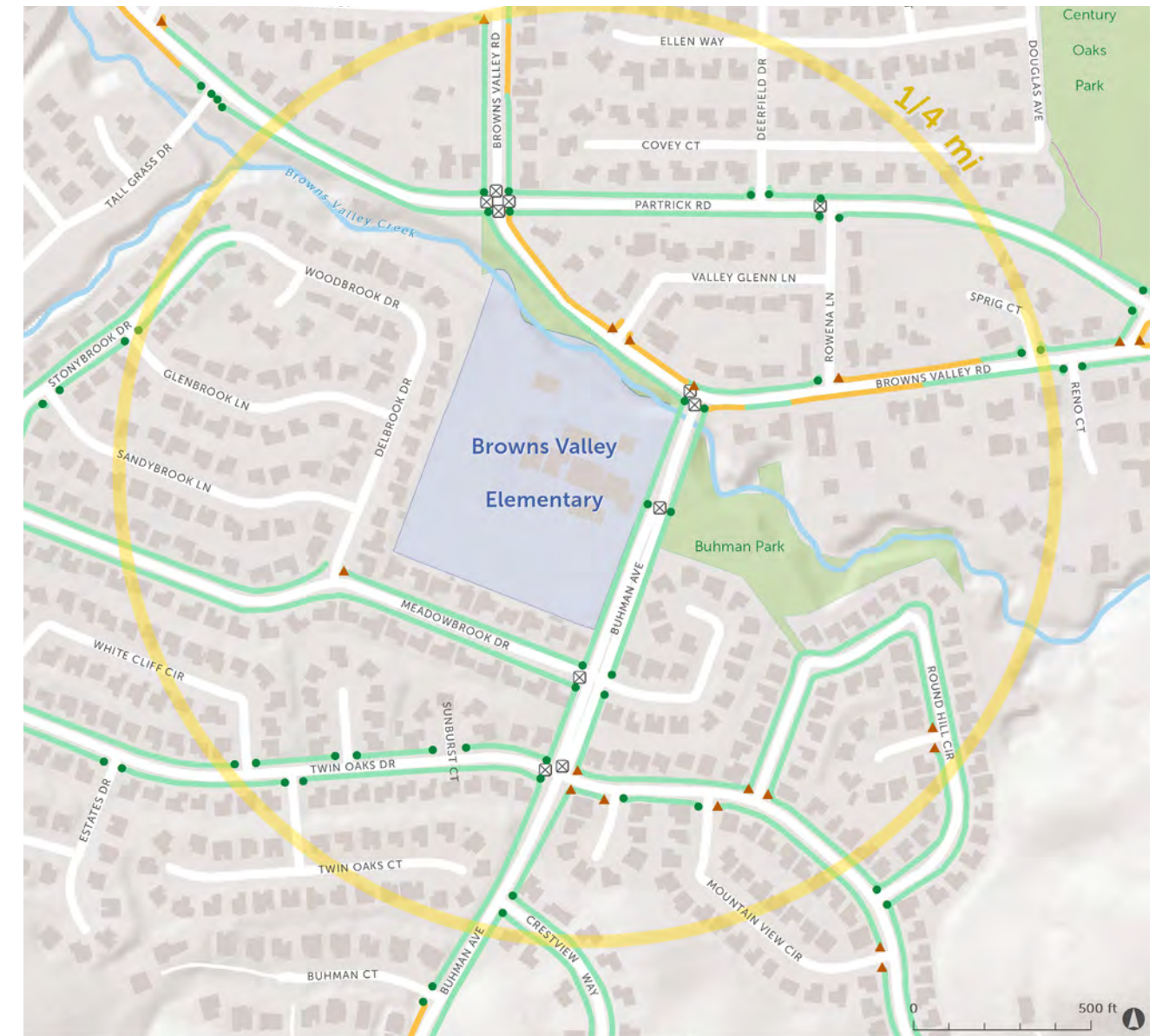
MAP OF EXISTING BICYCLE FACILITIES



- Shared Use Path (Class I)
- Bike Route (Class III)
- Separated Bike Lane (Class IV)
- Bike Lane (Class II)
- Bike Boulevard (Class III)
- Trail

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

MAP OF EXISTING PEDESTRIAN FACILITIES



- |                  |                 |                  |
|------------------|-----------------|------------------|
| <b>Curb Ramp</b> | <b>Sidewalk</b> | <b>Crosswalk</b> |
| ● Existing       | ● Existing      | ⊠ Present        |
| ▲ Missing        | ▲ Missing       |                  |

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



## ENCOURAGEMENT AND EDUCATION PROGRAMS

Browns Valley Elementary School promotes walking and biking to school through communications with parents and participation in education and encouragement events.

In the school’s General Information document, which is distributed to parents and available on the school’s website, the school promotes safe walking and biking to school, writing:

This document also encourages parents to find alternative methods to dropping students off at the front of the school and mentions carpooling, walking, or parking and walking.



Browns Valley Elementary School students wait at a railroad crossing during a bike rodeo.

### Bikes

Students who are responsible and safety conscious are encouraged to ride bikes to school. We have two fenced bike areas where they may be locked. (An unlocked bike is an invitation for theft!) The school cannot be responsible for damaged or stolen bikes. The law requires children to wear helmets when they ride bikes. Please be sure your child complies. Be sure your child knows basic rules of the road, e.g. ride on the right side of the street with traffic and to signal before turning. Watch out for opening car doors. When approaching school, bike riders should dismount and walk through crosswalks governed by our school safety patrol. Once in the area in front of the school bikes should be walked to the bike racks. No riding is allowed on the school grounds.

Figure 6: School Bike Policy

Browns Valley Elementary School’s has consistently participated in annual countywide encouragement events such as Bike to School Day and Walk and Roll to School Day. Bike to School Day and Walk and Roll to School Day are annual encouragement events facilitated by Napa County Safe Routes to School in the spring and fall, respectively, that celebrate students making the healthy choice to walk or bike to school. The school has not expanded its encouragement program beyond these annual events.

The school has also provided some bike safety education to students in the form of bike rodeos led by the Napa County Safe Routes to School program. Bike rodeos are mainly on-bike lessons where students learn the rules of the road by navigating a roadway-designed obstacle course.

YEAR	EVENT	STUDENT PARTICIPANTS
2015/16	Bike Rodeo	N/A
2015/16	Bike to School Day	58
2016/17	Bike to School Day	31
2018/19	Walk and Roll to School Day	109
2018/19	Bike Rodeo	530
2018/19	Bike to School Day	101
2019/20	Walk and Roll to School Day	113
2019/20	Bike Rodeo	N/A – Cancelled due to COVID

Figure 7: Encouragement and Education Data

## EXISTING PLANS

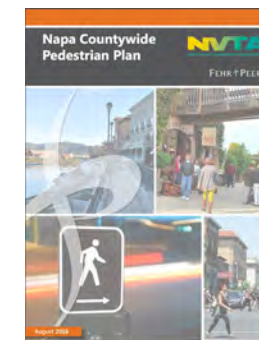


### NVTA Napa Countywide Bicycle Plan (2019):

The Napa Countywide Bicycle Plan has some recommended improvements for bicycle facilities around the school site. Browns Valley Road/1st Street from Partrick Road to Freeway Drive is listed as a study corridor in the Bicycle Plan. The Plan recommends completing the Class II bike lanes on Browns Valley Road between Buhman Avenue and Partrick Road. It also recommends a series of Class III bicycle boulevards for several nearby streets, including Partrick Road west of Browns Valley Road, Scenic Drive, and Westview Drive.

### NVUSD Facilities Master Plan (2016):

NVUSD’s Facilities Master Plan lists several projects for Browns Valley Elementary School, including installing fencing around the perimeter of the school, improving ADA compliance, and constructing a new parking lot along Buhman Avenue. School perimeter fencing is planned to provide a single point of entry during school hours, though there may be more than one entry point during pick-up and drop-off, and wayfinding signage for each elementary school in NVUSD. These projects could impact bicyclist, pedestrian, and driver circulation around the school.



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

The Napa Countywide Pedestrian Plan calls for a Browns Valley Road Complete Streets Project. This project includes widening the road to provide sidewalks and bike lanes.

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

The NVTA Countywide Transportation Plan is a long-range plan of countywide transportation priorities that provides a direction for the four- to five-year plan while considering a 25-year planning horizon. This plan is part of the regional planning process for the Regional Transportation Plan by the Metropolitan Transportation Commission. There are 28 projects by the City of Napa listed in the Plan – two listed projects, the First Street and Browns Valley Road Corridor Complete Streets project and the Browns Valley Road Complete Streets project, impact the school area.



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

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



# WALK AUDIT

**Date:** 3/20/19

**Meeting Time:** 12:45 PM

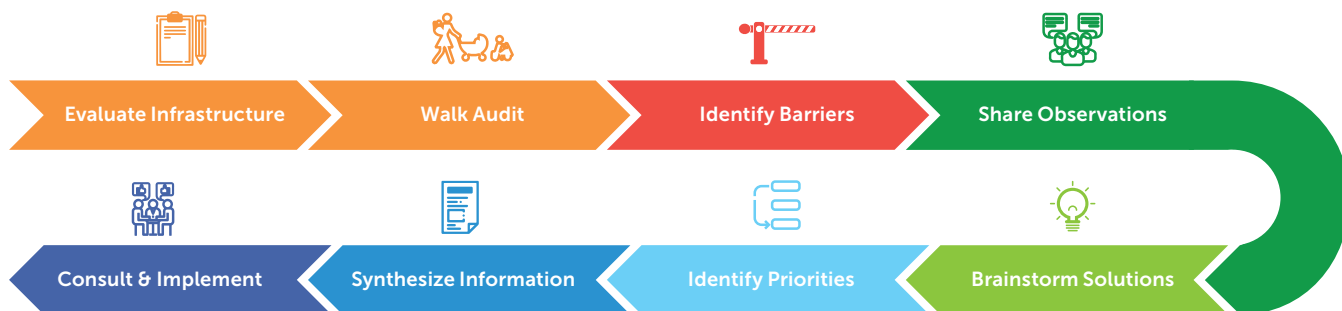
**Day of the Week:** Wednesday

**Weather:** Some clouds and light rain

## METHODOLOGY

The Community Walk Audit brought school stakeholders together to observe existing conditions during pick-up time, identify barriers to safe walking or biking, and brainstorm solutions. The Walk Audit team consisted of seven participants that were either parents, staff, or both. The group met 30 minutes prior to the school bell for a brief presentation on the SRTS program and the process and purpose of Walk Audits. The team began the Walk Audit 15 minutes before the school bell. The team walked through the staff parking lot to Buhman Avenue, north along Buhman Avenue to Browns Valley Road, west on Browns Valley Road, and then east on Browns Valley Road before returning to the school. Participants observed and discussed the physical infrastructure along these segments as well as the behavior of motorists, pedestrians, and bicyclists in the area. They also shared their own experiences traveling to and from the school and stopped parents along the walk to ask for their input. Fifteen minutes after the bell, the team returned to the classroom to discuss their observations, map issue areas, and record and prioritize the major barriers identified during the exercise.

During the prioritization exercise, participants wrote down several barriers that were of high priority to them on sticky notes, placed them on a poster on the wall, and organized them into sections based on similar topics. Then, participants placed four 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.



## WALK AUDIT FINDINGS

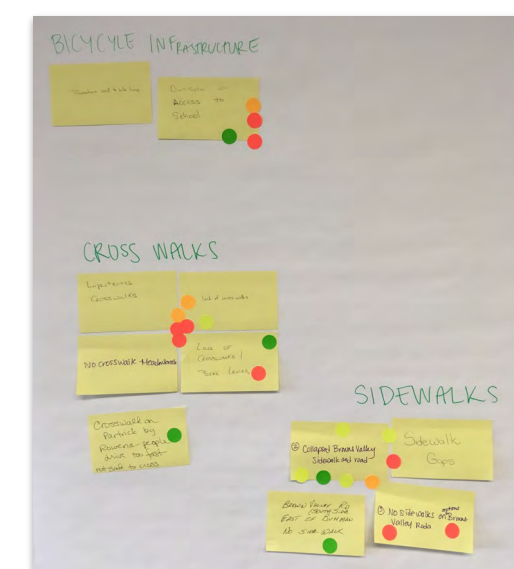
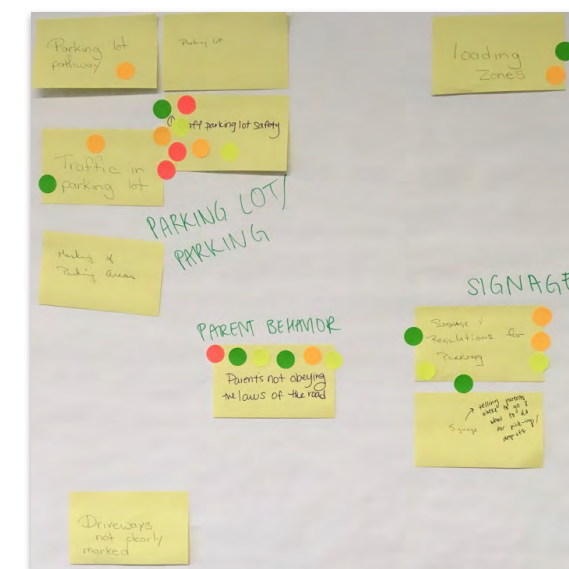
This section of the report lists the barriers identified by Walk Audit participants during the Walk Audit activity. The barriers listed in the following table are the results of the Walk Audit prioritization activities – the content and language used reflect what Walk Audit participants wrote on their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

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

### Stakeholder-Identified Barriers:

DESCRIPTION	LOCATION	VOTE SCORE
Congestion, bike/pedestrian conflicts with motorists	Staff parking lot	16
Sidewalk gaps/collapsed sidewalks	Browns Valley Road	15
Lack of crosswalks	School site area	12
Lack of signage	Staff parking lot	8
Policy noncompliance	Staff parking lot	7
Inaccessibility of bicyclists to school site	School site area	5
Lack of bike lanes	School site area	4
Unsafe loading zones	Buhman Avenue	3
Unsafe crosswalk	Partrick at Rowena	2
Bike lanes end early	General	1
Unmarked driveways	School site area	1

Figure 8: Walk Audit Stakeholder-Identified Barriers



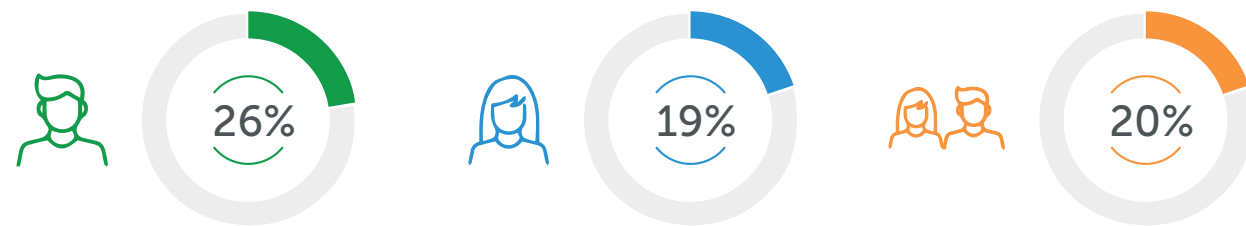


# CONTEXT FOR RECOMMENDATIONS

## IMPACT OF BARRIERS/HAZARDS ON COMMUNITY

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

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



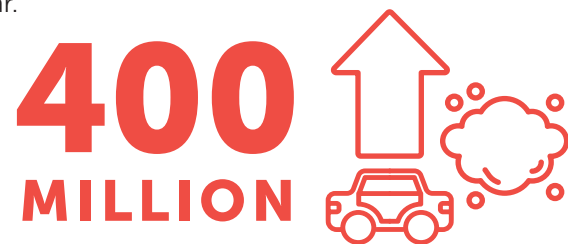
However, only about **26% of men**, **19% of women**, and **20% of adolescents** are meeting the aerobic and muscle-strengthening guidelines developed by the Department of Health. Increased walking and biking to school can help boost that percentage by incorporating physical activity into one's daily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

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



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

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



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

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

# RECOMMENDATIONS

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

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



## RECOMMENDATIONS #NAI-025-NAI-029: BUHMAN AVE BIKE/PED IMPROVEMENTS

**Narrative** – As the school's two front entrances are located on Buhman Avenue, the majority of the school's students must travel along Buhman Avenue to reach campus. In addition to high volumes of multimodal school-related traffic, Buhman Avenue also serves as a collector for the neighborhoods around it and acts as an alternative route towards Sonoma County for motorists looking to avoid SR 29. As a result, Buhman Avenue is a highly-travelled traffic corridor, particularly during morning hours when students are travelling to school and adults are travelling to work.



Rectangular Rapid Flashing Beacons were installed at the Buhman Avenue midblock crosswalk after the Walk Audit.

### IDENTIFIED BARRIERS

- **Motorist speeding** – Buhman Avenue is a long, straight, and wide corridor with no traffic-calming or traffic control and transitions to a higher speed, rural area south of the school, all of which facilitates frequent motorist speeding.
- **Uncontrolled crosswalk** – The Buhman Avenue midblock crosswalk directly in front of the school is an uncontrolled crosswalk, allowing motorists to drive through the crosswalk without slowing down and reducing motorist yielding behavior.
- **Long crossing distance** – The long crossing distance across Buhman Avenue requires pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and pushes pedestrians further out of the range of vision of motorists.
- **High-stress bike facilities** – The existing Class II bike lanes are stressful for students and families with beginner riders, due to the high speeds and volumes of vehicle traffic on Buhman Avenue and the high risk of conflict with motorists during school arrival/dismissal times when motorists are pulling into and out of parking spaces.
- **Faded existing facilities** – Faded existing Class II bike lanes reduce bicyclist sense of safety and can increase occurrence of vehicles encroaching in bike lanes.

### RECOMMENDATIONS

- **NAI-025 Curb extensions** – Install floating curb extensions at mid-block crosswalk in front of campus, with consideration of bike facility recommendations, to reduce crossing distance, improve motorist yielding behavior, and slow motorists through the intersection.
- **NAI-026 Parking-protected bike lanes** – From Browns Valley Road to Meadowbrook Court, install parking-protected bike lanes with a buffer between parked cars and bike lane. This treatment provides physical protection for bicyclists and decreases stress while retaining parking for school use.
- **NAI-027 Protected bike lanes** – From Meadowbrook Court to Twin Oaks Drive, install protected Class IV bike lanes to increase protection for bicyclists and help reduce speeding by narrowing travel lanes.
- **NAI-028 Buffered bike lanes** – From Twin Oaks Drive to Buhman Court, install buffered Class II bike lanes to maintain separation between bicyclists and vehicles while transitioning bicyclists to more rural landscape and unprotected Class II bike lanes further south.
- **NAI-029 Existing maintenance** – Ensure consistent maintenance of existing bike lanes until SRTS bike facility recommendations can be implemented to maximize safety of existing facilities.





## RECOMMENDATIONS #NAI-030 AND NAI-031: BROWNS VALLEY ROAD AND BUHMAN INTERSECTION

**Narrative** – The Browns Valley Road and Buhman Avenue intersection is a key intersection on the route to school for a large portion of the school population, given that the two front entrances to campus are on Buhman Avenue and that Browns Valley Road is the arterial road providing the only route to Buhman Avenue for many of the Browns Valley neighborhoods. For most students who do not live in the Buhman Avenue neighborhoods, the Browns Valley Road and Buhman Avenue intersection is a required part of their route to school. Furthermore, the school encourages families who drive to park on Browns Valley Road or a few blocks away from the school, resulting in high volumes of student pedestrians navigating this intersection.

### IDENTIFIED BARRIERS

- **Busy intersection** – This intersection is highly travelled by all modes of transportation to access the school, which can feel chaotic and challenging during peak school hours.
- **Low-visibility crosswalks in school zone** – The crosswalks are painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.
- **Bike facilities end** – The existing bike facilities on both Browns Valley Road and Buhman Avenue end before the intersection, which can reduce motorist awareness of bicyclists and leave bicyclists uncertain of how to navigate the intersection.
- **Wide curb radii** – Wide curb radii facilitate fast motorist turning motions through the intersection.



The Browns Valley Road and Buhman intersection (construction on Browns Valley Road has since been completed).

### RECOMMENDATIONS

- **NAI-030 Curb extensions and paint improvements** – Install curb extensions on southwest and southeast corners and north side if feasible with bike facility to shorten crossing distance and increase pedestrian visibility. Upgrade crosswalks to high-visibility school-zone pattern to improve pedestrian visibility and paint curb red on north side of intersection to prevent vehicles from obstructing pedestrian visibility.
- **NAI-031 Bicycle facilities** – Complete existing bike lanes to the intersection and add conflict markings in areas of high bicyclist/motorist conflict risk, such as northbound Buhman. This will ensure that bicyclists using the existing facilities have a clearly marked complete facility along the corridor.



## RECOMMENDATIONS #NAI-033 AND NAI-035-NAI-038: BROWNS VALLEY ROAD HIGH PRIORITY RECOMMENDATIONS

**Narrative** – Browns Valley Road is an arterial east of Partrick Road (east) and a collector west of Partrick Road (east), carrying high volumes of traffic from the surrounding Browns Valley neighborhoods. It is the primary east-west road for the Browns Valley area and provides a direct route to SR 29 and downtown Napa, as well as providing access to destinations such as Browns Valley Market and Westwood Hills Park. For all of the neighborhoods north and east of the Buhman Avenue and Browns Valley Road intersection, Browns Valley Road is a key part of the most direct route to Browns Valley Elementary School. The corridor is long and relatively straight with wide lanes, no traffic-calming, and little traffic control. The corridor currently has Class II bike lanes and is designated as a study corridor in the City of Napa 2019 Bike Plan.

### IDENTIFIED BARRIERS

- **Sidewalk gaps** – Sidewalk gaps along Browns Valley Road (eastbound side from Buhman Avenue to McCormick Lane and westbound side 4018 to 4016 Browns Valley Road) create gaps in the pedestrian network that force pedestrians to either walk in the road or cross the street in an unmarked location to reach the other existing sidewalk (if present). Large sections of missing sidewalks can prevent students from walking to school altogether.
- **High-stress bike facilities** – The existing Class II bike lanes are stressful for students and families with beginner riders, due to the high speeds and volumes of vehicle traffic on Browns Valley Road and the lack of road user separation.



One of the sidewalk gaps on Browns Valley Road is immediately east of the Buhman intersection in front of the school.

### RECOMMENDATIONS

- **NAI-033 Fill sidewalk gaps** – Fill sidewalk gaps to provide a continuous pedestrian network and reduce unnecessary pedestrian road crossings.
- **NAI-035 Buffered bike lanes** – Install buffered Class II bike lanes from Scenic Drive to Partrick Road (segment reflects ½ mile radius of school - consider for entire corridor north of Scenic) to increase bicyclist and motorist separation while accommodating the many residence driveways.
- **NAI-036 Class II/Class III bike facilities** – From Partrick Road to Buhman Ave: Paint Class II bike lanes (5') on the westbound side where they narrow/disappear at Valley Glen Lane and install Class III bike boulevards on the eastbound side with signage, sharrows, and traffic-calming. These facilities will provide a continuous bike network on the Browns Valley Road corridor through this constrained segment.
- **NAI-037 Class IV/Class II bike facilities** – From Buhman Avenue to Partrick Road (east), install Class IV protected bike lanes on eastbound side and buffered Class II bike lanes on westbound side to increase separation of travel modes while maintaining existing resident parking.
- **NAI-038 Protected bike lanes** – From Partrick Road (east) to McCormick Lane, upgrade existing Class II bike lanes to Class IV protected bike lanes with parking protected lanes where parking is allowed (segment reflects ½ mile radius of school - consider for entire corridor until Laurel). While some on-street parking may have to be removed to maintain adequate bicyclist sight lines, this treatment increases separation between bicyclists and motorists without removing all on-street parking where it exists.



**RECOMMENDATION #NAP-002: BIKE AND PEDESTRIAN SAFETY EDUCATION**



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

**IDENTIFIED BARRIERS**

- **Irregular safety education** – Irregularly provided bicycle/pedestrian safety education can result in unintentional unsafe student bicyclist/pedestrian behavior and a sense of discomfort riding a bike.

**RECOMMENDATIONS**

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



*Bike rodeos, such as the one photographed above at Browns Valley Elementary, are one form of bike safety education.*

**RECOMMENDATION #NAP-004: ENCOURAGEMENT PROGRAMMING**



**Narrative** – Browns Valley Elementary School has frequently participated in the annual encouragement events facilitated by Napa County Safe Routes to School: Bike to School Day and Walk and Roll to School Day. While annual programming can remind and excite students about the option of using active transportation to travel to school, the infrequency of these events makes them less effective at encouraging students to adopt active transportation as an everyday form of transportation. Increasing the frequency of encouragement events, in conjunction with infrastructure improvements, can help increase mode shift towards active transportation.

**IDENTIFIED BARRIERS**

- **Congestion in school zone** – High volumes of vehicle traffic in the school zone during pick-up and drop-off can make the school zone feel chaotic and unwelcoming to bicyclists and pedestrians.
- **Infrequent encouragement programs** – While annual countywide encouragement events are a great place to start, infrequent encouragement events are not effective enough in normalizing active transportation as an everyday mode of transportation.

**RECOMMENDATIONS**

- **Encouragement programs** – Continue to grow participation in annual encouragement events and organize additional encouragement events throughout the year (ex: Walk and Roll Wednesdays).
- **Walking bus/bike train program** – Develop a walking school bus/bike train program to increase the number of students who walk and bike to school while improving sense of safety by forming an adult-supervised group.



*Walk and Roll to School Day 2018 at Browns Valley Elementary School.*

**RECOMMENDATIONS #NAI-021 AND NAI-023: CAMPUS IMPROVEMENTS**

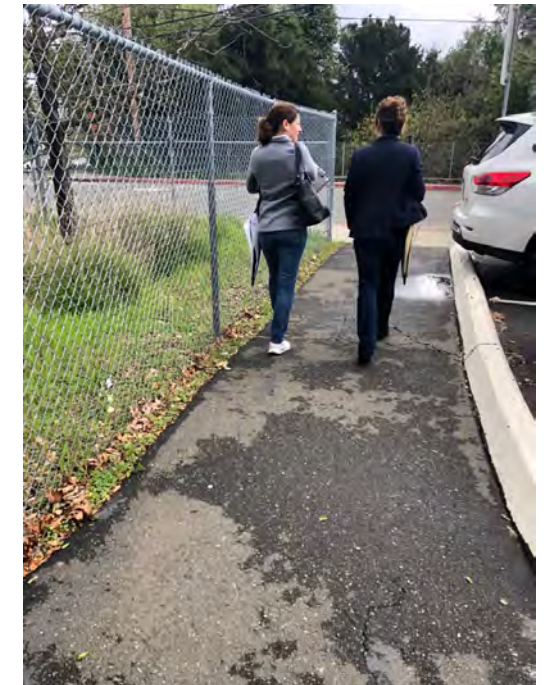


**IDENTIFIED BARRIERS**

- **Congestion/conflict in school zone** – High volumes of vehicle traffic in the school zone during pick-up and drop-off can make the school zone feel chaotic and unwelcoming to bicyclists and pedestrians and result in road user conflicts. Congestion and conflict between road users was the top barrier identified by Walk Audit participants.
- **Bike rack positioning** – On-campus bicycle parking facilities are not near the main entrance, reducing awareness of available bike parking, and are positioned against a fence, causing half of the parking spaces to be inaccessible.

**RECOMMENDATIONS**

- **NAI-021 Pedestrian path** – Widen the separated pedestrian path off of Buhman Avenue along the parking lot to accommodate higher volumes of bicyclists and pedestrians and reduce occurrences of walking/biking through parking lot.
- **NAI-023 Reposition bicycle rack** – Relocate the bike racks to be closer to main school entrances and position the racks so that all parking spaces are accessible; ensure that bike parking is secure by bolting the rack to the pavement or keeping it within the school gates.



*The Buhman Ave pedestrian path onto campus can quickly become crowded with pedestrians and students walking bicycles, especially when motorists park so that vehicles are sticking into the pedestrian space over the dividing curb.*





## RECOMMENDATION #NAI-024: DELLBROOK AND GLENBROOK INTERSECTION PEDESTRIAN IMPROVEMENTS

### IDENTIFIED BARRIERS

- **Low-visibility crosswalks in school zone** – The crosswalks are painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.
- **Wide curb radius** – The wide curb radius on the southwest corner facilitates fast motorist turning movement through the intersection.
- **Lack of red zones** – The lack of “no parking” red zones around the intersection allows motorists to park adjacent to the crosswalks and obstruct pedestrian visibility.
- **Uncontrolled traffic** – Traffic on Dellbrook is uncontrolled, allowing motorists to drive through the intersection without slowing down and reducing motorist yielding behavior.



The back entrance to campus is located at the Dellbrook Drive and Glenbrook Lane intersection.

### RECOMMENDATIONS

- **Pedestrian crossing signage** – Install pedestrian crossing signage to increase driver awareness of student pedestrians and bicyclists in the intersection.
- **High-visibility crosswalks** – Upgrade crosswalks to be high-visibility school-zone patterns to increase pedestrian visibility and motorist yielding behavior.
- **Curb extensions** – Install curb extensions on the southwest corner and east side of the crosswalk across Dellbrook to slow motorists through the intersection, improve motorist yielding behavior, and improve pedestrian visibility.



## RECOMMENDATION #NAI-032: BROWNS VALLEY ROAD TRAFFIC-CALMING

### IDENTIFIED BARRIERS

- **Motorist speeding** – Browns Valley Road (from Buhman Avenue to Laurel Street) is a long, straight, and wide arterial corridor with no traffic-calming or traffic control, which facilitates frequent motorist speeding.
- **Poor yielding behavior** – Poor motorist yielding behavior at uncontrolled crosswalks across Browns Valley Road is facilitated by long crossing distances, high motorist speeds and low-visibility crosswalks.



The crosswalk across Browns Valley Road and McCormick Lane, like most of the crosswalks across Browns Valley Road, has a long crossing distance, low-visibility crosswalk pattern, and no traffic control or calming.

### RECOMMENDATIONS

- **Traffic-calming measures** – Install traffic-calming measures along the Browns Valley corridor, beginning with curb extensions at Westview Dr, McCormick Ln, Larkin Way, Thompson Ave, Robinson Ln, and Laurel St, which will also improve motorist yielding behavior at these uncontrolled crosswalks.
- **High-visibility crosswalks** – Upgrade crosswalks across Browns Valley Road at the above listed intersections to be high-visibility patterns to increase pedestrian visibility and motorist yielding behavior.





## RECOMMENDATION #NAI-039: TWIN OAKS DR AND BUHMAN AVE INTERSECTION

### IDENTIFIED BARRIERS

- **Long crossing distance** – The long crossing distance across Buhman Avenue requires pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and pushes pedestrians further out of the range of vision of motorists.
- **Uncontrolled traffic** – Traffic on Buhman is uncontrolled, allowing motorists to drive through the intersection without slowing down and reducing motorist yielding behavior.
- **Low-visibility crosswalks** – The crosswalks are painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.



The long crossing distance across Buhman Avenue at the Twin Oaks Drive intersection.

### RECOMMENDATIONS

- **Curb extensions** – Install curb extensions on all corners to reduce crossing distances, slow motorist traffic through the intersection, and improve motorist yielding behavior.
- **High-visibility crosswalks** – Upgrade existing crosswalks to a high-visibility school zone pattern to increase pedestrian visibility and motorist yielding behavior.



## RECOMMENDATION #NAI-040: BROWNS VALLEY ROAD AND PARTRICK ROAD (WEST) INTERSECTION

### IDENTIFIED BARRIERS

- **Busy intersection** – As both Browns Valley Road and Partrick Road are highly-travelled roads (both collectors), this intersection can experience high volumes of traffic, particularly during peak school hours, which can feel chaotic and challenging for student bicyclists and pedestrians.
- **Wide curb radii** – Wide curb radii on all corners of the intersection facilitate fast motorist turning movement through the intersection.

### RECOMMENDATIONS

- **High-visibility crosswalks** – Upgrade existing crosswalks to a high-visibility pattern to increase pedestrian visibility and motorist yielding behavior.
- **Curb extensions** – Install curb extensions on corners where bicycle facilities will not be obstructed (northwest, northeast, southwest corners) to reduce curb radii and improve motorist yielding behavior.



The existing crosswalks at the Browns Valley Road and Partrick Road (west) intersection are painted a low-visibility pattern.



MAP OF RECOMMENDATIONS

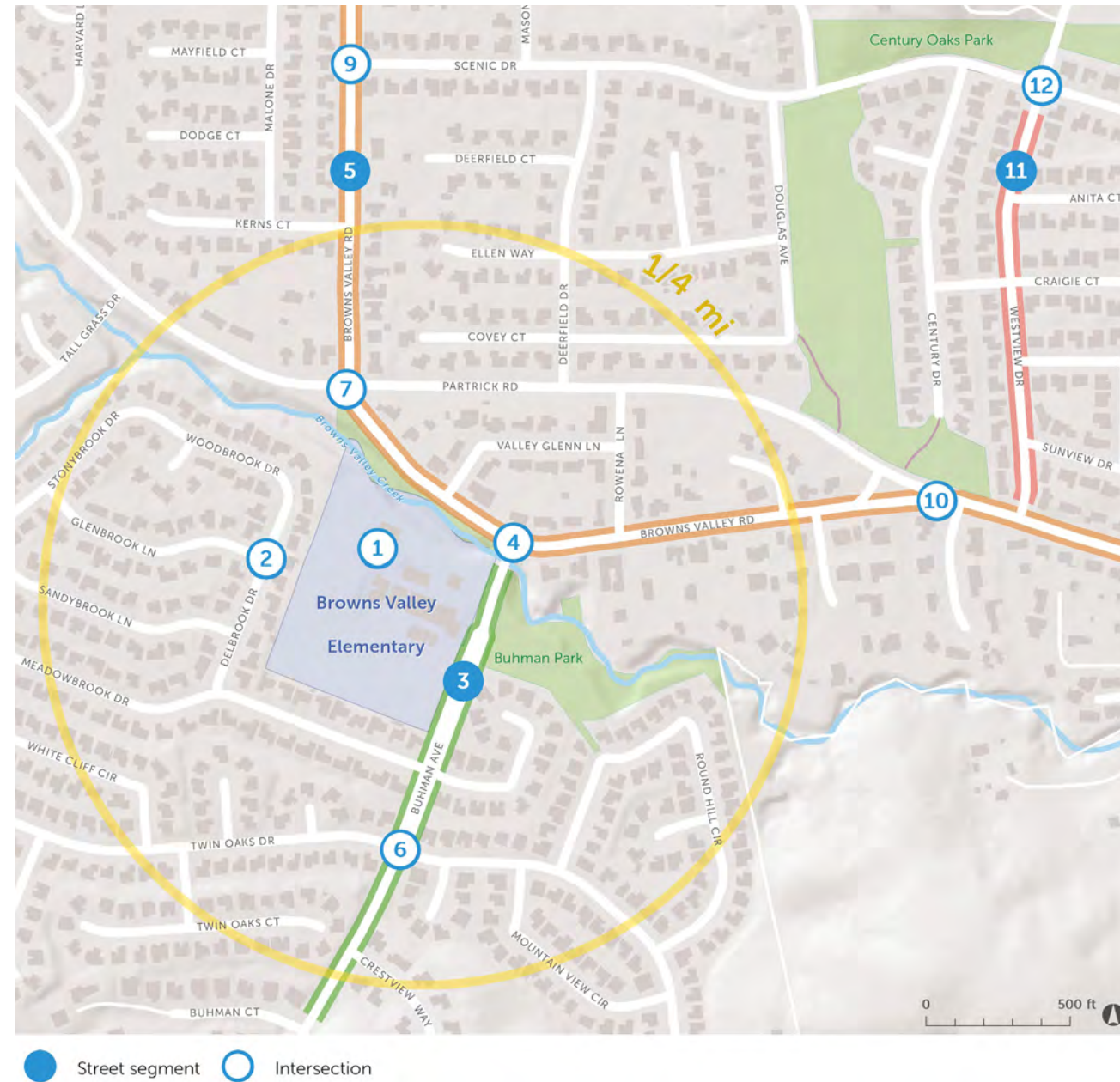


TABLE OF RECOMMENDATIONS

Infrastructure:

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
1	School grounds	NAI-021	Congestion and conflict in school zone during pick-up/drop-off	Widen separated pedestrian path along parking lot	\$	Medium
		NAI-022			\$	Low
		NAI-023	Narrow sidewalk on west side	Widen sidewalk on west side	\$	Medium
2	Dellbrook Drive and Glenbrook Lane intersection	NAI-024	Low-visibility crosswalk in school zone, wide curb radius on southwest corner facilitates speeding, lack of red zones allows motorists to park adjacent to crosswalk and obstruct visibility, traffic is uncontrolled	Install pedestrian crossing signage and upgrade crosswalk striping to high-visibility pattern. Install curb extensions on southwest corner and east side of crosswalk across Dellbrook	\$-\$	Medium
3	Buhman Avenue from Browns Valley Road to Buhman Court	NAI-025	Uncontrolled midblock crosswalk in front of school entrance; long, straight, wide corridor facilitates motorist speeding; long crossing distance across Buhman Ave	Install floating curb extensions at mid-block crosswalk in front of school, with consideration of bike facility recommendations	\$-\$	High
		NAI-026	Class II bike lane are stressful for students/families; high motorist/bicyclist conflict risk due to presence of on-street parking, especially during school arrival/dismissal times	(Segment 1) From Browns Valley Road to Meadowbrook Court, install parking-protected bike lanes with a buffer between parked cars and bike lane.	\$	High
		NAI-027		(Segment 2) From Meadowbrook Court to Twin Oaks Drive, install protected Class IV bike lanes	\$	High
		NAI-028		(Segment 3) From Twin Oaks Drive to Buhman Court, install buffered Class II bike lanes.	\$	High
4	Browns Valley Road and Buhman Avenue intersection	NAI-030	Highly-travelled intersection for school traffic by all travel modes. Low-visibility crosswalks in school zone, bike facilities end before intersection, wide curb radii facilitate fast motorist turning motion.	Install curb extensions on southwest and southeast corners and north side if feasible with bike facility. Upgrade crosswalks to high-visibility pattern. Paint curb in intersection red.	\$	High
		NAI-031		Complete bike lanes to intersection and add conflict markings	\$	Medium



	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
5	Browns Valley Road* from Karen Drive to Laurel Street	NAI-032	Motorist speeding, poor motorist yielding behavior at uncontrolled crosswalks across Browns Valley Road	Install traffic-calming along corridor from Buhman Avenue to Laurel Street, beginning with curb extensions at Westview Dr, McCormick Ln, Larkin Way, Thompson Ave, Robinson Ln, and Laurel St. Upgrade crosswalks across Browns Valley Road at the listed intersections to be high-visibility patterns.	\$\$-\$\$\$	Medium
		NAI-033	Sidewalk gaps	Fill sidewalk gaps (eastbound: Buhman Avenue to McCormick Lane; westbound: 4018 to 4016 Browns Valley Road)	\$\$	High
		NAI-034		Fill sidewalk gaps (westbound: Karen Drive to Kerns Court, Partrick Road to Buhman Avenue)	\$\$	Low
		NAI-035	Existing bike facilities are stressful for students and families, high conflict risk with motorists, motorists speeding on corridor	From Scenic Drive to Partrick Road: Install buffered Class II bike lanes (consider for entire corridor north of Scenic)	\$	High
		NAI-036		From Partrick Road to Buhman Avenue: Westbound: Paint Class II bike lanes (5') where they narrow/disappear at Valley Glen Lane; Eastbound: Install Class III bike boulevards with signage, sharrows, and traffic-calming	\$	High
		NAI-037		From Buhman Avenue to Partrick Road (east): Install Class IV protected bike lanes on south side and buffered Class II bike lanes on north side	\$\$	High
		NAI-038		From Partrick Road (east) to McCormick Lane: Upgrade existing Class II bike lanes to Class IV protected bike lanes with parking protected lanes where parking is allowed (consider for entire corridor until Laurel)	\$\$	High
		NAI-039	Long crossing distance across Buhman Avenue, uncontrolled traffic on Buhman Avenue (corridor facilitates speeding), low-visibility crosswalks in school zone	Install curb extensions on all corners, upgrade existing crosswalks to high-visibility pattern	\$\$	Medium
6	Twin Oaks Drive and Buhman Avenue intersection	NAI-039				
7	Browns Valley Road and Partrick Road (west) intersection	NAI-040	Busy intersection (two collectors), wide curb radii facilitate fast motorist turning movements	Upgrade crosswalks to high-visibility pattern, install curb extensions on corners where bicycle facilities will not be obstructed (northwest, northeast, southwest)	\$\$	Medium

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
8	Karen Drive from Browns Valley Road to Harvard Lane	NAI-041	No sidewalks	Install sidewalks on both sides of the road	\$\$	Low
9	Browns Valley Road and Scenic Drive intersection	NAI-042	No crosswalks	Paint crosswalk across Scenic Drive	\$	Low
10	Browns Valley Road and Partrick Road (east) intersection	NAI-043	Uncontrolled Partrick Road traffic, Partrick Road/Browns Valley Road traffic high potential for speeding due to long, straight corridor with no traffic-calming and little traffic control	Upgrade existing crosswalk across Partrick Road to high-visibility pattern. Install curb extension on north side of crosswalk.	\$	Low
11	Westview Drive from Browns Valley Road to Scenic Drive	NAI-044	Motorist speeding	Install traffic-calming measures along corridor, beginning with curb extensions at intersection with Scenic Drive (see NAI-045)	\$\$	Low
12	Westview Drive and Scenic Drive intersection	NAI-045	No crosswalks, wide curb radii facilitate fast motorist turning movement	Paint crosswalks on all four legs of intersection, install curb extensions	\$\$	Low

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

**Programmatic Improvements:**

	ISSUE	ID #	RECOMMENDATION	LOCATION	FREQUENCY	COST	PRIORITY
1	Irregularly provided bicycle/pedestrian safety education	NAP-002	Provide annual in-school bicycle and pedestrian safety education for all students	School site	Annual	\$	High
2	Road user conflict in school zone during pick-up/drop-off	NAP-003	Upgrade circulation policy and create mode-separating circulation plan/map. Increase communication of policy/plan to parents	School zone	Annual/as-needed	\$	Low
3	Congestion in school zone; infrequency of encouragement events	NAP-004	Continue participation in annual encouragement events and organize additional encouragement events throughout the year (ex: Walk and Roll Wednesdays). Develop walking school bus/bike train program	School site/local neighborhoods	Annual for countywide events; monthly for additional events with goal of increasing frequency	\$	High

## APPENDICES

[Appendix A: EMC Survey Toplines](#)

[Appendix B: Universal Recommendations](#)

[Appendix C: Quick-Build Options for Infrastructure Improvements](#)

[Appendix D: Bike Parking Guide](#)

[Appendix E: Recommendation Cost Range Matrix](#)

[Appendix F: Next Steps](#)

## FIGURES & MAPS

[Figure 1 – EMC Research Polling Results](#)

[Figure 2 – Enrollment Data by Group \(p. 8\)](#)

[Figure 3 – Enrollment Data by Grade \(p. 8\)](#)

[Figure 4 – School Safety and Traffic Patrol Handout \(p. 11\)](#)

[Figure 5 – School Parking Information \(p. 11\)](#)

[Figure 6 – School Bike Policy \(p. 14\)](#)

[Figure 7 – Encouragement and Education Data \(p. 14\)](#)

[Figure 8 – Walk Audit Stakeholder-Identified Barriers \(p. 17\)](#)

[Figure 9 – Collision Data \(p. 32\)](#)

[Map 1 – Enrollment Boundary \(p. 7\)](#)

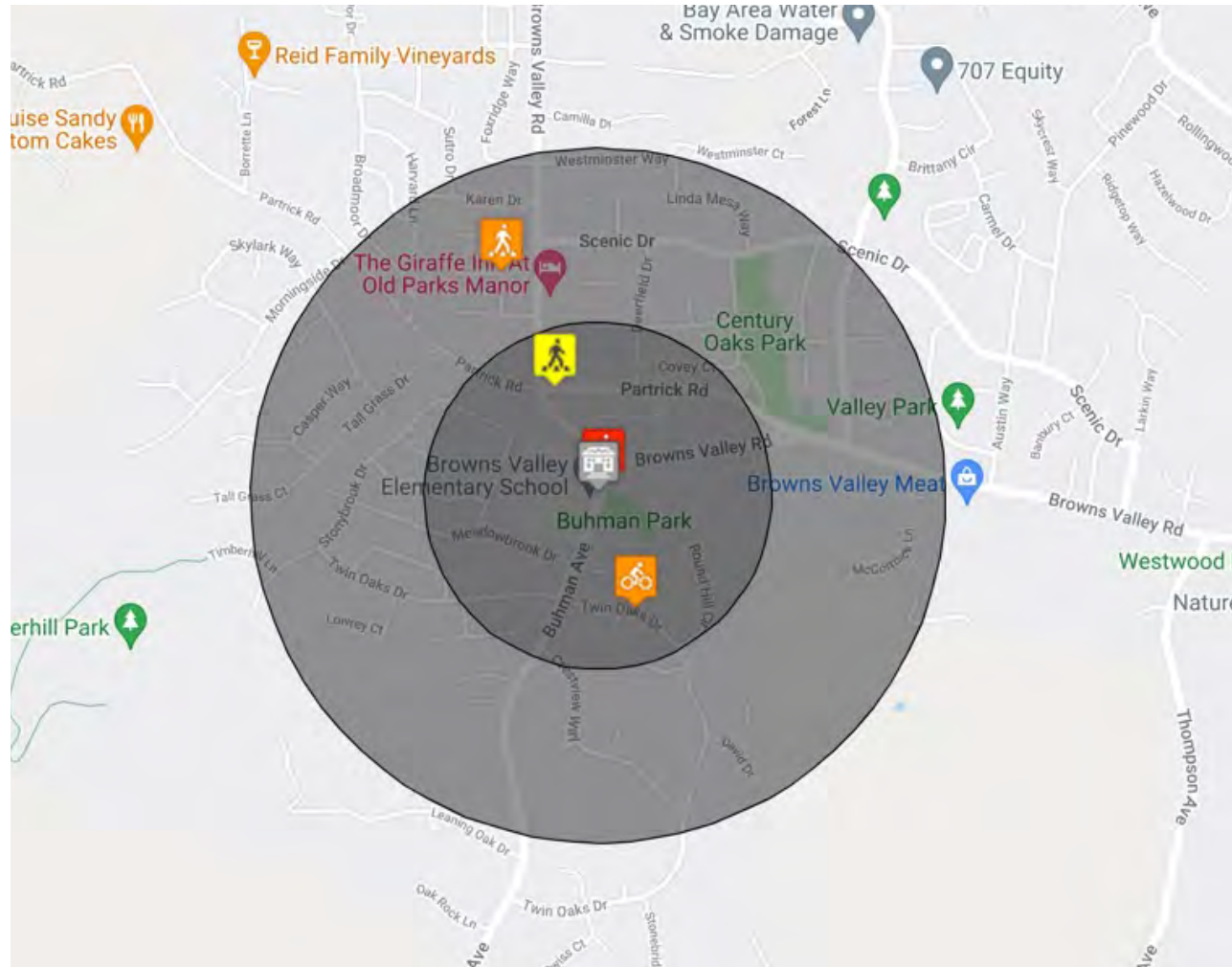
[Map 2 – School Site Location in City \(p. 9\)](#)

[Map 3 – Existing Bicycle Facilities \(p. 12\)](#)

[Map 4 – Existing Pedestrian Facilities \(p. 13\)](#)

[Map 5 – Recommendations \(p. 28\)](#)

[Map 6 – Collision Map \(p. 32\)](#)



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

### Summary Statistics

RADIUS	FATAL	SEVERE INJURY	VISIBLE INJURY	COMPLAINT OF PAIN	PEDESTRIAN	BICYCLE	TOTAL
< .25 mi.	1	1	1	0	2	1	3
.25-.5 mi.	0	1	0	0	1	0	1
Total	1	2	1	0	3	1	4

### Collision List

DATE	TIME	PRIMARY	SECONDARY	BIKE/PED
2017-03-13	08:18	Dodge Ct	Malone Dr	No/Yes
2018-06-07	12:31	Partrick Rd	Browns Valley Rd	No/Yes
2020-08-06	14:57	Buhman Av	Browns Valley Rd	No/Yes
2018-04-30	17:23	Twin Oaks Dr	Round Hill Cir	Yes/No

Figure 9: Collision Data (2016-2020) (Source: UC Berkeley Transportation Injury Mapping System: SRTS Collision Map Viewer)



## FOOTNOTES

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

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

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

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

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

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

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

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

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

<sup>j</sup> Overall Facility Rating determined from 2019-20 School Accountability Report Card

# **APPENDIX A**

## **EMC Survey Toplines**

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



# Evaluation: Research & Methodology

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



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

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

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

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

---

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

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

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

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



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

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

- |    |  |    |
|----|--|----|
| 3. | On most days, what was the primary way your (K-8 child/oldest K-8 child) travelled <b>to</b> school?       |    |
|    | Family vehicle (only children in your family)  | 73 |
|    | Carpool (children from other families)   | 3  |
|    | School bus   | 3  |
|    | Other public transportation  | 0  |
|    | Bike   | 4  |
|    | Walk   | 16 |
|    | Other (scooter, skateboard, inline skates, etc.)   | 0  |
|    | (No response)  | 0  |
| 4. | And on most days, what was the primary way your (K-8 child/oldest K-8 child) travelled <b>from</b> school? |    |
|    | Family vehicle (only children in your family)  | 73 |
|    | Carpool (children from other families)   | 3  |
|    | School bus   | 3  |
|    | Other public transportation  | 1  |
|    | Bike   | 4  |
|    | Walk   | 15 |
|    | Other (scooter, skateboard, inline skates, etc.)   | 0  |
|    | (No response)  | 0  |
| 5. | How long did it normally take your (K-8 child/oldest K-8 child) to get to/from school?                     |    |
|    | Less than 5 minutes  | 18 |
|    | 5-10 minutes   | 42 |
|    | 11-15 minutes  | 22 |
|    | 16-20 minutes  | 8  |
|    | More than 20 minutes   | 9  |
|    | (No response)  | 0  |
| 6. | Has your (K-8 child/oldest K-8 child) ever walked or biked to/from school?                                 |    |
|    | Yes  | 43 |
|    | No   | 56 |
|    | (No response)  | 0  |

7. **(ONLY ASKED IF Q6=1, 'Yes, has walked/biked to/from school')** In what grade did your child begin to walk or bike to/from school? (n=199)
- |                        |    |
|------------------------|----|
| Pre-school             | 7  |
| Kindergarten           | 30 |
| 1st grade              | 9  |
| 2nd grade              | 6  |
| 3rd grade              | 10 |
| 4th grade              | 8  |
| 5th grade              | 9  |
| 6th grade              | 13 |
| 7th grade              | 6  |
| 8th grade              | 1  |
| 9th through 12th grade | 1  |
| (No response)          | 2  |
8. Thinking generally, what grade would you feel comfortable with a child walking or biking to/from school?
- |   |    |
|---|----|
| Pre-school                                | 1  |
| Kindergarten                              | 5  |
| 1st grade                                 | 2  |
| 2nd grade                                 | 2  |
| 3rd grade                                 | 5  |
| 4th grade                                 | 14 |
| 5th grade                                 | 12 |
| 6th grade                                 | 16 |
| 7th grade                                 | 10 |
| 8th grade                                 | 7  |
| 9th through 12th grade                    | 13 |
| I would not feel comfortable at any grade | 14 |
| (No response)                             | 1  |



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

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

**(END RANDOMIZE)**

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

**(VERBATIM RESPONSES CODED INTO BELOW CATEGORIES) (n=335)**

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

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

**(VERBATIM RESPONSES CODED INTO BELOW CATEGORIES) (n=324)**

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

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

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

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

**(END RANDOMIZE)**



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

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

**(END RANDOMIZE)**

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

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

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

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

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

Yes	79
No	21
(No response)	-

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

Yes	78
No	21
(No response)	0

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

47. Do you identify as...

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



48.	What year were you born? (YEARS CODED INTO CATEGORIES)	
	18-29 (2003-1992)	5
	30-39 (1982-1991)	36
	40-49 (1972-1981)	45
	50-64 (1957-1971)	12
	65 or older (1956 or earlier)	1
	Prefer not to respond	1
49.	Do you consider yourself to be...	
	Hispanic or Latino	38
	White or Caucasian	41
	African American or Black	1
	Asian or Pacific Islander	7
	Something else	3
	Prefer not to respond	10
50.	Do you...	
	Own or are buying the home or apartment where you live	55
	Rent or lease	35
	Prefer not to respond	10

**THANK YOU!**

# **APPENDIX B**

## **Universal Recommendations**

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



## **Appendix B**

### **Napa County SRTS Walk Audit Report**

### **Universal Recommendations**

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

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

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

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

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

#### **Universal Recommendation 2: Intersection Daylighting**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



# **APPENDIX C**

## **Quick Build Brochure**

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

# QUICK-BUILD BIKEWAY NETWORKS FOR SAFER STREETS

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

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



*Photo credit: Alta Planning + Design*

### CASE STUDY

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

### WHY QUICK-BUILD? WHY NOW?

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

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

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

***“We as transportation experts need to be thinking strategically about whether or not we need to spend three years talking about doing something important, or three weeks to just try something.”***

— Warren Logan

*Transportation Policy Director of  
Mobility and Interagency Relations at  
Oakland Mayor’s Office*

# WHAT IS QUICK-BUILD?

## The Basics

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

## Materials

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

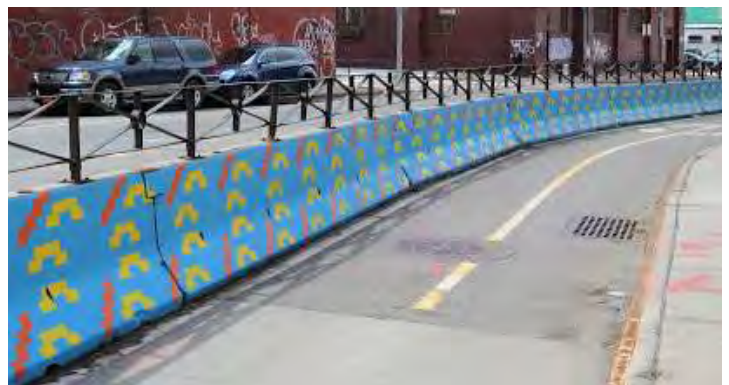


Photo credits, top to bottom: Alta Planning + Design; Real Hartford; Alta Planning + Design; Street Plans Collaborative



## CASE STUDY

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

Photo credit: Bike SLO County



# WHO?

## Your Quick-Build Project Team



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



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



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



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



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

## Community Engagement

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

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

### CASE STUDY

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

*Photo credit: Holly Raines*



## WHERE?

### Which Projects are Best for Quick-Build?

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

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

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



Photo credit: Alta Planning + Design

### Funding for Quick-Build

#### POTENTIAL FUNDING SOURCES IN CALIFORNIA

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

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

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



# **APPENDIX D**

## **Bike Parking Guidance**

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



ESSENTIALS OF

# BIKE PARKING

Selecting and installing bicycle parking that works



*apbp*  
Association of Pedestrian  
and Bicycle Professionals  
Expertise for Active  
Transportation

## Essentials of Bike Parking

Revision 1.0, September 2015

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### 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](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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www.apbp.org



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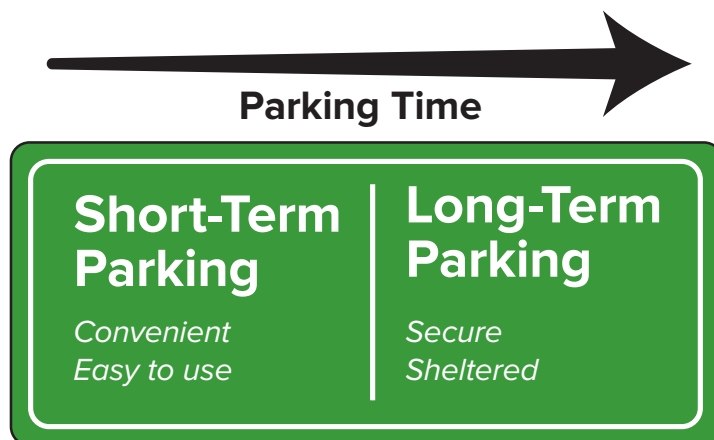
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## INTRODUCTION

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

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

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

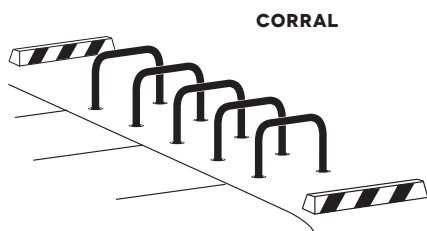




# SHORT-TERM PARKING

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

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



## SITE PLANNING

### Location

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

### Security

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

### Quantity

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

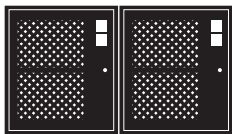
## BIKE CORRALS

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

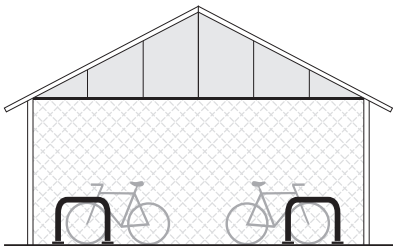
# LONG-TERM PARKING

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

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



**BIKE LOCKERS**



**SHELTERED SECURE ENCLOSURE**

## SITE PLANNING

### Location

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

### Security

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

### Quantity

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

## SPECIAL CONSIDERATIONS FOR LONG-TERM PARKING

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

### Density

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

### Bicycle design variety

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

### Performance criteria

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

# INSTALLATION

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

## INSTALLATION SURFACE

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

## INSTALLATION FASTENERS

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

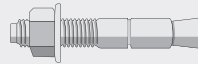
### FASTENERS

#### CONCRETE SPIKE



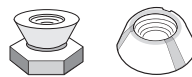
Installs quickly in concrete with a hammer. Tamper-resistant. Removal may damage concrete and/or rack.

#### CONCRETE WEDGE ANCHOR



Allows for rack removal as needed. Not tamper-resistant, but can accommodate security nuts (below).

#### SECURITY NUTS



Use with concrete wedge anchors. Security nuts prevent removal with common hand tools.

## INSTALLATION TECHNIQUES

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





# BICYCLE RACK SELECTION

## PERFORMANCE CRITERIA FOR BIKE PARKING RACKS

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

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

# RACK STYLES

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

## RACKS FOR ALL APPLICATIONS

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

### INVERTED U

also called  
staple, loop



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

### POST & RING



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

### WHEELWELL-SECURE



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

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

## HIGH-DENSITY RACKS

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

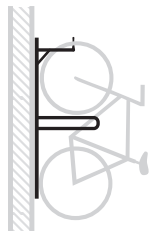
High-density rack systems can maximize the use of limited parking space, but they don't work for all users or bicycles. If installing these racks, reserve additional parking that accommodates bicycles with both wheels on the ground for users who are not able to lift a bicycle or operate a two-tier rack,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

### STAGGERED WHEELWELL-SECURE



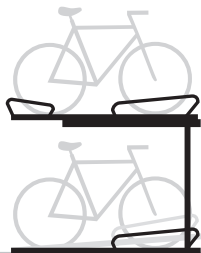
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

### VERTICAL



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

### TWO-TIER



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



## RACKS TO AVOID

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

**WAVE**  
also called undulating  
or serpentine



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

**SCHOOLYARD**  
also called  
comb, grid



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

**COATHANGER**



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

**WHEELWELL**



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

**BOLLARD**



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

**SPIRAL**



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

**SWING ARM  
SECURED**



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

## RACK MATERIALS & COATINGS

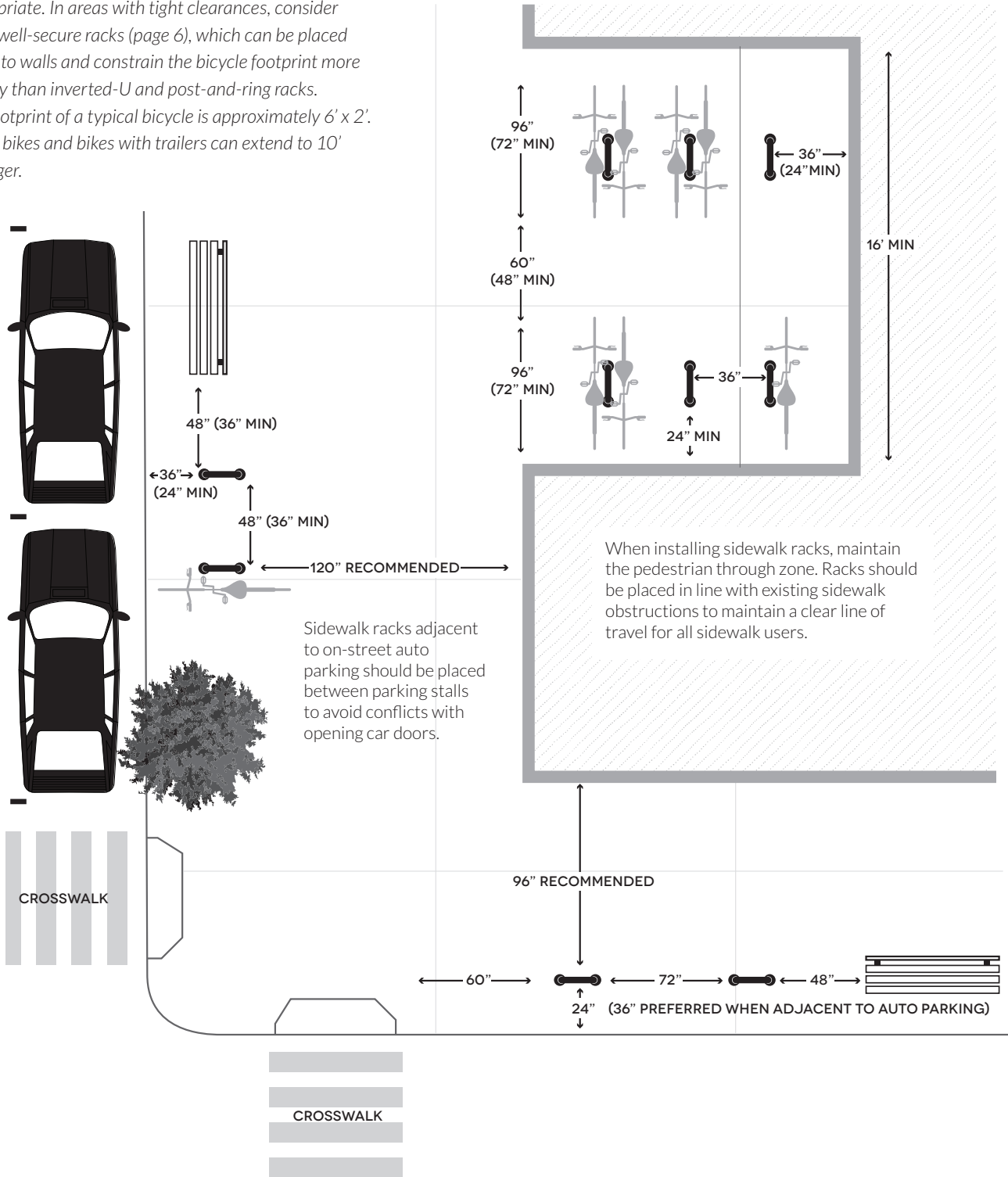
Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as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

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

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

# PLACEMENT

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





# **APPENDIX E**

## **Recommendation Cost Range Estimates**

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

## Appendix E: Recommendation Cost Range Estimates

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

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

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

# **APPENDIX F**

## **Next Steps**

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

## From Recommendations to Action: Next Steps

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

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

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

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



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

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