



San Mateo County Office of Education San Carlos Safe Routes to School Report June 2013

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1. Introduction

Walking and bicycling to school is a healthy practice that reduces air pollution, traffic congestion, and safety concerns while fostering students' habits of using nonmotorized transportation modes. Parents frequently cite distance, convenience, the ages of the children, and safety as reasons for choosing to drive their children to school. Safe Routes to School (SRTS) programs address these obstacles to enable and encourage students to walk and bike to school.

The San Carlos School District encourages safe access and active transportation to school. This report identifies infrastructure projects and programs to improve student safety and encourage walking and biking to school at Brittan Elementary and Central Middle Schools. Programmatic and infrastructure improvements are based on community input and walk audit observations held in April, 2013.

Alta Planning + Design staff and the District Wellness Coordinator observed key problem intersections at each school during morning drop-off. At Brittan Acres, several parents joined Alta Planning + Design staff, the District Wellness Coordinator, and the school principal to walk around the school and surrounding neighborhood to discuss problem areas and potential solutions. At both schools, attendees marked up maps of the school area and enrollment area to identify issues and existing walking and bicycling routes.

Specific infrastructure recommendations are presented by school. The programmatic recommendations are district-wide and address the other "4 E's" of Safe Routes to School: Education, Encouragement, Enforcement and Evaluation. These programs are recommended to address issues commonly observed at both schools.

1.1. How to Use this Report

At the heart of every successful Safe Routes to School program is a coordinated effort by parent volunteers, school staff, City staff, and the Police Department.

For each school, engineering recommendations are presented in graphic improvement plans with accompanying tables that identify the agency intended to implement the corresponding recommendation(s). Some recommendations are on school district property, while others are in the City of San Carlos right-of-way and those must be implemented by the City. Following the school specific recommendations are district-wide recommendations, indented to address common challenges. **Appendix A** presents a summary overview of school area signs, crosswalks and other physical improvements recommended in this report.

How can you use this report?

Parents can use this report to understand the conditions at their children's school and to become familiar with the ways this program is working to make walking and biking safer.

School district and school staff can use this report to prioritize improvements identified on District property and develop programs that educate and encourage students and parents to seek alternatives to single family commutes to school. In many cases, education and encouragement programs require dedicated parent volunteers to carry them out.

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City staff can use this report to identify citywide issues and opportunities related to walking and biking and to prioritize infrastructure improvements. City staff can also use this report to support Safe Routes to School funding opportunities such as:

- California Active Transportation Program (ATP) grants
- Office of Traffic Safety (OTS) grants
- One Bay Area (OBAG) grants
- Highway Safety Improvement Program (HSIP) grants

Police department staff can use this report to understand school related traffic issues and to plan for and prioritize enforcement activities that may make it easier and safer for students to walk and bike to school.

2. Brittan Acres Elementary School Recommendations

2.1. School Information

Principal:	John Triska	
Enrollment:	474	
Grades:	Kindergarten through Grade 4	
Arrival:	Kindergarten	8:25 AM (Early birds)
		9:25 AM (Late birds)
	All Other Grades	8:20 AM
	Wednesday (All)	8:25 AM
Dismissal:	Kindergarten	1:25 PM (Early birds)
		2:25 PM (Late birds)
	Grades 1-3	2:25 PM
	Grade 4	2:45 PM
	Wednesday (All)	12:25 PM



Brittan Acres entrance sign.

2.1.1. Layout

Brittan Acres Elementary School is located on Belle Avenue between Tamarack Avenue and Cordilleras Avenue. Alameda de Las Pulgas is close to the western border of the school and is the western boundary of the enrollment area. Tamarack Avenue is closed northbound at Belle Avenue. A student loading zone has been defined along the school frontage westbound on Belle Avenue. Main walking routes to the school are via Tamarack Avenue and Cordillaras Avenue, which both have controlled crossings of Brittan Avenue. Arroyo Avenue is a Class III bicycle route, although students are more likely to use Eucalyptus Avenue due to steep hills.

Students can access the school either from the main loading zone along Belle Avenue or at the corner of Belle Avenue and Tamarack Avenue. Bicycle parking is provided at the multi-use room.

Due to the young age of students who attend Brittan Acres Elementary, a small number of students were observed bicycling and none observed taking transit. Topography may also contribute to the lack of bicycling, particularly due to higher traffic speeds and volumes as well as poor sight lines due to hills. Students are required to walk their bicycles and skateboards on the school campus.

2.1.2. Site Visit

The project team conducted a walk audit at Brittan Acres Elementary on Thursday, April 11th, 2013 during morning pick-up. Conditions were sunny and clear. No extraneous circumstances appeared to influence traffic circulation. Mindy Hill, Wellness Coordinator for the San Carlos School District, Principal John Triska, and two Alta Planning + Design staff participated in the observation audit during drop-off.

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Parents were invited to meet in front of the school at the first bell. Eight parents joined the walking portion of the audit. The group observed school access, traffic circulation, infrastructure in the school vicinity. The group returned to the school for a brief presentation on the San Mateo County Safe Routes to School program and discussed their observations.

2.1.3. Loading Zone

The primary loading zone for the school is on Belle Avenue. The Principal and teachers assist with drop-off. The presence of the officials likely reduces U-turns and deters most students from crossing Belle Avenue mid-block, although some still do.



The school principal and student valets assist with the main loading zone on Belle Avenue.

The school places a Walking Rules sandwich board in the planting strip to remind families of how to obey the crossing guard and safely walk to school. In-street yield paddles are planned on Cordillaras Avenue at Belle Avenue, on Belle Avenue at the same intersection, and on Cordillaras Avenue at Arroyo Avenue.

2.1.4. Crossing Guard Location

A crossing guard is stationed east of the school, on Belle Avenue at Cordilleras Avenue. The Principal and teachers, as well as 4th Graders assist with student loading and unloading along Belle Avenue.

2.2. Issues and Recommendations

2.2.1. Tamarack Avenue and Belle Avenue

Tamarack Avenue and Belle Avenue is a four-way stop controlled intersection. This intersection receives heavy use by drivers and pedestrians, particularly in the morning drop-off period, as students from St. Charles School are dropped off on Tamarack Avenue and parents continue southbound, Tamarack Avenue is one-way between Belle Avenue and Elizabeth Street. Parents dropping children off at Brittan Acres Elementary are generally travelling westbound after dropping their children off on Belle Avenue and making the left turn onto Tamarack Avenue at this intersection.



Northbound Tamarack Avenue is closed at Belle Avenue.

Yellow school transverse crosswalks are currently marked on all four legs of this intersection.

Recommendations (ID #1)

Conflicts arise at this location between drivers turning left and families walking to school crossing both Belle Avenue and Tamarack Avenue. Repainting select crosswalks to direct pedestrians to preferred crossing locations can improve circulation at this intersection. There are fewer street crossings on the west side of Tamarack and a simpler crossing on the north side of this intersection (due to the prohibition on northbound traffic on Tamarack Avenue). Pedestrians are recommended to walk on the west side of Tamarack Avenue, cross the west leg then the north leg of this intersection, to access the school on the north side of Belle Avenue. This movement can be recommended on the Walk and Roll maps (shown in **Figure 2-2** and **Figure 2-3**) and by repainting the crosswalks with high-visibility yellow ladder crosswalks.

ADA treatments include tactile strips on curb ramps. In addition, an Assembly D advance school warning sign on Lupine Way as it approaches the intersection would increase awareness of the intersection from the west.

2.2.2. Cordilleras Avenue at Belle Avenue

This intersection is wide and slightly offset. Zebra-striped yellow school crosswalks exist on the northwest, southwest, and southeast legs. Belle Avenue northeast of this intersection does not have sidewalks, and the sidewalks on Cordilleras Avenue do not continue to the intersection, and no crossing is provided on the northeast leg. The City plans to install an in-street yield paddle on the southeast leg of the intersection.



The intersection of Cordilleras Avenue and Belle Avenue has sidewalk, curb ramp, and drainage challenges.

A fire hydrant blocks the narrow curb ramp on the north corner, while a stop sign blocks the sidewalk on the east corner. Red curb is painted on all approaches except on southwestbound Belle Avenue and on the northeast side of Cordilleras Avenue as it approaches the intersection. Audit participants noted that the west corner floods during heavy rains.

Recommendation (ID #2)

Red curb should be painted on the southeast corner of Cordilleras Avenue to improve visibility. Other short-term improvements include tactile strips on all curb ramps and an Assembly D advance school crossing warning sign on the westbound approach of Belle Avenue. A longer-term recommendation is to reconstruct the east corners of the intersection to provide sidewalk, curb ramps, and a crossing across Belle Avenue. This would increase sidewalk space for pedestrians waiting to cross. Another longer-term recommendation is to improve drainage on the northwest corner.

2.2.3. Cordilleras Avenue at Elizabeth Street

The main intersection for families accessing school from the north, this intersection is characterized by reported high vehicular speeds coming downhill on Cordilleras Avenue, poor yielding compliance at the uncontrolled marked crossing on the south leg, and a lack of sidewalks on Elizabeth Street and Cordilleras

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Avenue north of the intersection. A wide shoulder is marked on the west side of the street and the west and south legs have high-visibility transverse crosswalks. Stenciled “Slow School Crossing” markings are painted on both approaches on Cordilleras Avenue.

Recommendations (ID #3)

To improve visibility and encourage higher stopping compliance, the existing crosswalks should be upgraded to high-visibility yellow ladder crosswalks. In addition, Assembly D and Assembly B school crossing warning signs on the southbound approach will help alert drivers to the crosswalk. The existing “School Xing” sign should be replaced with a compliant Assembly B sign with an arrow showing the school crossing location on the south side of the intersection. Longer-term improvements include constructing curb ramps on south corners and considering traffic calming treatments on Cordilleras Avenue.

2.2.4. Cordilleras Avenue at Arroyo Avenue

Arroyo Avenue is a designated bike route with pavement markings and signs. Arroyo Avenue is stop-controlled at this intersection, while traffic on Cordilleras Avenue is uncontrolled. The west and south legs of the intersection are painted with yellow transverse crosswalks, and a stop line is provided on westbound Arroyo Avenue.

The crossing of Cordilleras Avenue at Arroyo Avenue is challenging for pedestrians due to the curve, relatively high volumes of northbound drivers, and visibility issues due to the position of the sun at drop-off time.

Pedestrians are encouraged to walk on the west side of the street by crosswalk placement on the west leg of the intersection. A yellow transverse crosswalk on the west leg currently reinforces this recommendation.

Recommendation (ID #4)

Red curb should be painted on the northeast corner of Cordilleras Avenue on the approach to improve visibility. Other short-term improvements include tactile strips on all curb ramps and an Assembly D and Assembly B school crossing warning signs on the northbound approach of Cordilleras Avenue. An in-street yield sign would reinforce drivers’ responsibility to yield to pedestrians in the crosswalk. Another longer-term recommendation is to improve drainage on the west corner.

2.2.5. Cordilleras Avenue at Birch Avenue

Birch Avenue is stop-controlled at Cordilleras Avenue. No crossing treatments are currently provided at this intersection, although there are curb ramp on the west corners, as well as a stop bar and pavement marking on both approaches of Birch Avenue.



Arroyo Avenue is a designated bike route, although bicyclists use Eucalyptus Avenue to avoid the hill.

Recommendation (ID #5)

To encourage families to walk along the west side of Cordilleras Avenue, a transverse crosswalk should be painted across the west leg of this intersection, and tactile strips provided on the curb ramps.

2.2.6. Eucalyptus Avenue

Students currently bicycle on Eucalyptus Avenue as an alternative to the designated bike route on Arroyo Avenue because of a steep hill on Arroyo Avenue. While relatively few students bicycle to Brittan Acres Elementary due to the young age of the students and topography issues, this route is important for accessing Central Middle School and the future 4-5 school at the site.

Recommendations (ID #6)

Formalize this route with shared lane markings and “Bike Route” signs on Eucalyptus Avenue from Cordilleras Avenue, turning north on Orange Avenue to Arroyo Avenue. Also, to encourage families to walk along the west side of Cordilleras Avenue, a transverse crosswalk should be painted across the west leg of this intersection, and tactile strips provided on the curb ramps.

2.2.7. Cordilleras Avenue at Brittan Avenue

This all-way stop intersection is a key route to school. The school observation found good yielding compliance at this location, but enhanced crosswalk markings would improve visibility of pedestrians and increase drivers’ awareness of the school crossing. Tactile strips are provided on each curb ramp.

Recommendations (ID #7)

Repaint the crosswalks on all legs with high-visibility yellow ladder crosswalk markings.

2.2.8. Tamarack Avenue/Greenwood Ave at Brittan Avenue

Tamarack Avenue is stop-controlled at Brittan Avenue. A beacon facilitates pedestrian crossings of Brittan Avenue on the southwest side of the intersection. However, observation, feedback from the audit, and comments received indicate that drivers frequently do not yield at this location. An overhanging tree on the north corner blocks visibility of the beacon.

“Slow School Crossing” pavement markings are provided on both approaches to the crossing.



The beacon at Tamarack Avenue and Brittan Avenue is reported to have poor driver compliance.

Recommendations (ID #8)

Short-term improvements that may improve yielding compliance include painting yield teeth showing where drivers should wait for pedestrians in the intersection and trimming vegetation that impedes visibility of the beacon. Longer-term improvements include constructing curb extensions in the parking lane on both sides of

the marked crossing. This treatment shortens the crossing distance, places pedestrians in a more visible location, and visually narrows the road, discouraging speeding. Finally, the City should consider replacing the existing beacon with a Rapid Rectangular Flashing Beacon (RRFB), which has higher visibility and compliance than beacons.

2.2.9. Non-Infrastructure Recommendations

The school currently provides drop-off and pick-up instructions on the school website (www.brittanacres.org/procedures/drop-off-and-pick-up/). In addition to these reminders about driving, the website reminds families to use crosswalks rather than crossing in the middle of the street. These reminders and information stopping for pedestrians in crosswalks should also be sent out in a back-to school newsletter or at parent orientation. This information can also be published in the City's "City of Good Living" newsletter.

Because most drop-off and pick-up activities occur along the school frontage on Belle Avenue, congestion occurs in the morning and afternoon, as well as conflicts with pedestrians and bicyclists. Dispersing the access would improve circulation. This could be done in a variety of ways, including:

- Provide supervision and/or activities earlier in the morning to allow families to drop-off earlier
- Staggering arrival and dismissal times by grade, particularly on Wednesdays

Carpooling should be encouraged to reduce congestion around the school. Parents were unaware of the 511.org SchoolPool Tool, but may use it if the tool were advertised to parents. Several families already participate in informal Walking School Buses. The school could advertise and help organize these groups by encouraging families with similar commutes to connect with each other and share the trip.

Since speeding is a reported issue on several streets in the area, a mobile speed feedback sign could be purchased by the City and placed on streets as needed. Key locations include Cordilleras Avenue and Lupine Way.

Poor motorist behavior was identified as an issue during the audit and in comments received. While some of this is families commuting to the school, much of the issue is from commuter traffic on Cordilleras Avenue and Brittan Avenue. The City should consider a Citywide safety marketing campaign such as StreetSmarts to encourage drivers to slow down and watch for bicyclists and pedestrians. Increasing police enforcement along Brittan Avenue or a crosswalk sting operation at the beacon at the beginning of the school year could also improve compliance throughout the year.

2.2.10. Summary of Recommendations

Table 2-1 lists the recommended improvements to address circulation issues around Brittan Acres Elementary and Figure 2-1 presents an improvement plan of these recommendations. The project identification numbers in Table 2-1 correspond to those in Figure 2-1. The table identifies the agency likely to lead the improvement, the recommended priority level for implementation, and a planning level cost estimate. The priority level is based on the anticipated safety and circulation benefit, the feasibility of implementation, and the projected cost.

Figure 2-2 and Figure 2-3 following show the recommended Walk and Roll Map and indicate the best routes and current traffic control along those routes. While Brittan Avenue has bike lanes, it is not identified as a

Brittan Acres Elementary School Recommendations

recommended route due to relatively high traffic speeds and volumes along the roadway, as well as challenging intersections where drivers block the bike lane to make a right turn. The Eucalyptus Avenue/Orange Avenue/Arroyo Avenue route is preferred and shown for students.

Table 2-1: Brittan Acres Elementary Recommended Improvements

ID	Location	Recommendations	Lead Agency	Priority Level	Cost
1	Tamarack Ave at Belle Ave	<ul style="list-style-type: none"> Repaint north and west crosswalks as yellow ladder crosswalks Install tactile strips at north curb ramp Post Assembly D signs on eastbound approach of Belle Ave 	City	High	\$2,400
2	Cordilleras Ave at Belle Ave	<ul style="list-style-type: none"> Paint red curb on southeast side of Cordilleras Ave on approach Install tactile strips at all corners Post Assembly D signs on westbound approach of Belle Ave Construct sidewalk and reconstruct north and east corners, then paint yellow school crosswalk across northeast leg Improve drainage to reduce flooding on west corner 	City	High/Low (reconstruct north and east corners)	\$10,000 - \$18,000
3	Cordilleras Ave at Elizabeth St	<ul style="list-style-type: none"> Repaint west and south leg crosswalk as yellow ladder crosswalks Post Assembly D on southbound approach and replace existing sign with Assembly B Install in-street Yield to Pedestrians bollard in south crosswalk Construct curb ramps on south corners Consider traffic calming on Cordilleras Ave 	City	High/Medium (curb ramps)	\$2,300 - \$12,300
4	Cordilleras Ave at Arroyo Ave	<ul style="list-style-type: none"> Post Assembly B and D signs on northbound approach Install in-street Yield to Pedestrians bollard in south crosswalk Paint red curb on northeast side of Cordilleras Avenue on approach 	City	High	\$1,100
5	Cordilleras Ave at Birch Ave	<ul style="list-style-type: none"> Paint transverse yellow crosswalk on west leg Install tactile strips at west corners 	City	Medium	\$1,900

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ID	Location	Recommendations	Lead Agency	Priority Level	Cost
6	Eucalyptus Ave	<ul style="list-style-type: none"> • Mark sharrows and post Bike Route signs • Paint transverse yellow crosswalk on west leg • Install tactile strips at west corners 	City	Medium	\$3,100
7	Cordilleras Ave at Brittan Ave	<ul style="list-style-type: none"> • Repaint all crosswalks with high-visibility yellow ladder markings 	City	High	\$1,600
8	Tamarack Ave/Greenwood Ave at Brittan Ave	<ul style="list-style-type: none"> • Paint yield markings and text in advance of crosswalk • Trim vegetation at 2132 Brittan Ave blocking the beacon • Consider replacing existing substandard beacon with RRFB • Consider constructing curb extensions at crossing 	City	High/ Medium (RRFB & curb extensions)	\$1,200 - \$81,200
NA	Education and Encouragement	<ul style="list-style-type: none"> • Provide travel safety information in back-to school newsletter or at parent orientation • Consider staggering the access time • Promote 511.org SchoolPool Tool for carpooling • Post mobile speed feedback on streets with speeding problems • Support a Citywide safety marketing campaign 	School/ District/ City	High	NA
Total Cost					\$23,600 - \$121,600

Brittan Acres Elementary School
Recommended Improvements



- 1 Tamarack Ave at Belle Ave**
 - Repaint north and west crosswalks as yellow ladder crosswalks
 - Install tactile strips at north curb ramp
 - Post Assembly D signs on eastbound approach of Belle Ave
- 2 Cordilleras Ave at Belle Ave**
 - Paint red curb on southeast side of Cordilleras Ave on approach
 - Install tactile strips at all corners
 - Post Assembly D signs on westbound approach of Belle Ave
 - Construct sidewalk and reconstruct north and east corners, then paint yellow school crosswalk across northeast leg
 - Improve drainage to reduce flooding on west corner
- 3 Cordilleras Ave at Elizabeth St**
 - Repaint west and south leg crosswalk as yellow ladder crosswalks
 - Post Assembly D on southbound approach and replace existing sign with Assembly B
 - Install in-street Yield to Pedestrians bollard in south crosswalk
 - Construct curb ramps with tactile strips on south corners
 - Consider traffic calming on Cordilleras Ave
- 4 Cordilleras Ave at Arroyo Ave**
 - Post Assembly B and D signs on northbound approach
 - Install in-street Yield to Pedestrians bollard in south crosswalk
 - Paint red curb on northeast side of Cordilleras Avenue on approach
- 5 Cordilleras Ave at Birch Ave**
 - Paint transverse yellow crosswalk on west leg at Cordilleras Ave
 - Install tactile strips at west corners
- 6 Eucalyptus Ave**
 - Mark sharrows and post Bike Route signs
 - Paint transverse yellow crosswalk on west leg
 - Install tactile strips at west corners
- 7 Cordilleras Ave at Brittan Ave**
 - Repaint all crosswalks with high-visibility yellow ladder markings
- 8 Tamarack Ave/Greenwood Ave at Brittan Ave**
 - Paint yield markings and text in advance of crosswalk
 - Trim vegetation at 2132 Brittan Ave blocking the beacon
 - Consider replacing existing substandard beacon with RRFB
 - Consider constructing curb extensions at crossing

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Figure 2-1: Brittan Acres Elementary School Improvement Plan

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San Carlos Safe Routes to School

Brittan Acres Elementary Walk and Roll to School Map

What is Safe Routes to School (SR2S)?

SR2S San Mateo County is a countywide program offered by the San Mateo County Office of Education. The goal of the program is to encourage and enable school children to walk and bicycle to school by implementing projects and activities that improve the health, well-being, and safety of children and result in less traffic congestion and emissions caused by school-related travel.

Why SR2S?

SR2S activities can be an opportunity to try taking more active trips on foot or bicycle. Choosing an active transportation mode provides:

- Safer routes to school
- Health benefits
- Decreased traffic
- Community benefits
- Environmental benefits



Walk & Skate

- Always walk with a parent, other students, or a buddy.
- Be alert. Look left, right, and left again before crossing the street. At a four-way intersection, also look over your shoulder for cars that may be turning.
- Cross at corners or at a marked crosswalk. This is where drivers expect you.
- Don't assume drivers see you! Use eye contact and hand signals to communicate before crossing.
- Follow directions from crossing guards and safety patrols.
- Use a sidewalk when available. If there's no sidewalk, walk on the road facing oncoming traffic.



Bike

- Always wear your helmet and buckle it every time; it's the law!
- To best protect your brain, your helmet must fit properly: snug and level on your head, just above your eyebrows.
- Be predictable. Follow the same rules of the road as drivers when riding your bike. This includes obeying ALL stop signs and traffic signals, as well as yielding to pedestrians.
- When riding on the street, ride on the right hand side of the road, in the same direction as traffic. Watch out for turning cars and cars coming out of driveways.
- When riding on the sidewalk, ride slowly and watch out for pedestrians as well as cars coming out of driveways.
- Make eye contact and use hand signals to communicate with drivers and pedestrians.



Drive & Carpool

- Sign up at www.SchoolPool.org to find other families who share your commute to save time & money, while reducing traffic congestion near schools.
- Slow down in school zones or when children are nearby. The safest speed may be below 25 mph; children may struggle to accurately judge speed or distance.
- Do not use your cell phone while driving, even hands-free.
- Yield to pedestrians and bicyclists crossing the street and always follow the directions of crossing guards.
- Make sure children enter and exit the vehicle on the side next to the sidewalk.
- Avoid making U-turns, double-parking, blocking crosswalks, and other unsafe maneuvers.
- Consider parking a few blocks away and walking your child the rest of the way.



San Mateo County
SAFE ROUTES TO SCHOOL
Healthy Kids • Green Communities • Safe Journeys



www.smcoe.k12.ca.us/SR2S

Mindy Hill, San Carlos School District Wellness Coordinator
mhill@sancarlos.k12.ca.us | 650.339.2908

Figure 2-2. Walk and Roll to School Map Front

Brittan Acres Elementary School

Walk and Roll to School Suggested Routes

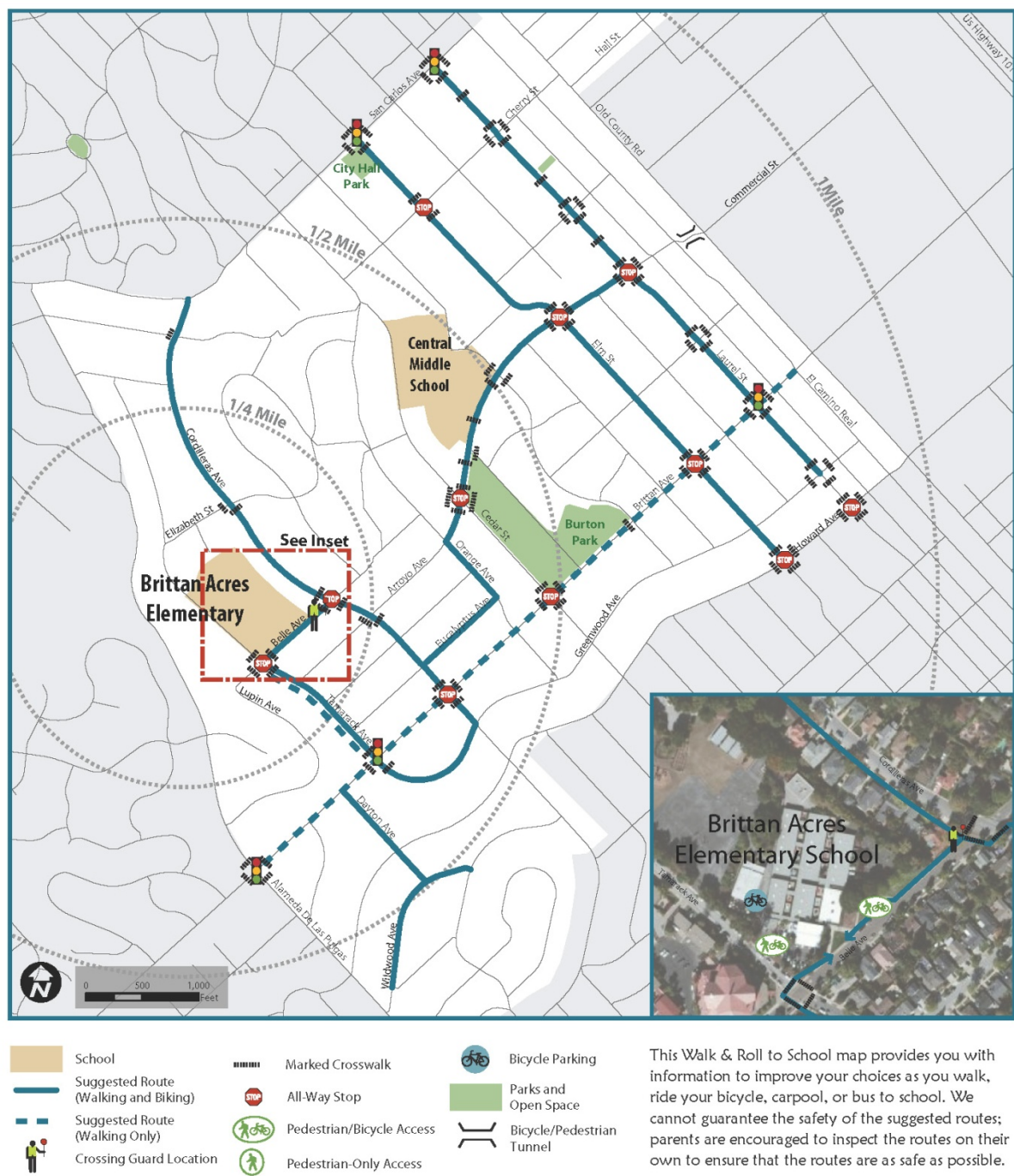


Figure 2-3. Walk and Roll to School Map Back

3. Central Middle School Recommendations

3.1. School Information

Principal:	Steve Kaufman	
Enrollment:	608	
Grades:	5 - 8	
Arrival:	All grades	8:25 AM
	Wednesday	8:25 AM
Dismissal:	All grades	3:00 PM
	Wednesday	1:00 PM



Many students were observed walking to Central Middle School.

3.1.1. Layout

Central Middle School is located at 828 Chestnut Street, adjacent to Cedar Street and Arroyo Avenue. Its enrollment area includes the eastern part of the City, bounded by Alameda de las Pulgas and San Carlos Avenue. The primary student loading zone is located in the parking lot accessed from Arroyo Avenue.

Bicyclists and pedestrians can access the school from the main entrance at Chestnut Street at School Street and from Arroyo Avenue at a midblock crosswalk. Bicycle parking is provided on the south side of the school along Arroyo Avenue. Walking routes to the school include Arroyo Avenue, Woodland Avenue, and Cedar Street, which provides a controlled crossing of Brittan Avenue. Arroyo Avenue and Cedar Street are designated bicycle routes.

3.1.2. Site Visit

The project team conducted a walk audit at Central Middle School on Tuesday, April 16th, 2013 during morning pick-up. Conditions were sunny and clear. No extraneous circumstances appeared to influence traffic circulation. Mindy Hill, Wellness Coordinator for the San Carlos School District, Principal Steve Kaufman, and two Alta Planning + Design staff participated in the observation audit during drop-off.

Audit participants observed school access, traffic circulation, and infrastructure in the school vicinity. The group returned to the school for a brief presentation on the San Mateo County Safe Routes to School program and discussed their observations.

3.1.3. Loading Zone

The primary loading zone for the school is an off-street loop accessed from Arroyo Avenue. No major issues were observed in the school parking lot. Curbside loading was observed on Chestnut Street and Arroyo Avenue. Motorists approach the school from Chestnut Street, Arroyo Avenue, and Cedar Street.

3.1.4. Crossing Guard Location

One crossing guard monitors the intersection of Arroyo Avenue and Woodland Avenue.

3.2. Issues and Recommendations

3.2.1. School Grounds

The school has a bike cage for students to lock their bikes adjacent to Arroyo Avenue. This parking facility is conveniently located for students approaching the school from Arroyo Avenue and is well used. However, the parking is older-style bike racks that do not provide two points of contact for the frame of the bicycle.

Recommendations (ID #1)

Consider expanding bicycle parking with U-rack style bike racks endorsed by the American Pedestrian and Bicycle Professionals.

The school site will be reconstructed in the next few years to accommodate a new grade 4-5 school on the site. The site design should consider pedestrian and bicyclist access to the schools and provide bicycle parking compliant with current standards as provided by the Association of Pedestrian and Bicycle Professionals' *Bicycle Parking Guidelines, 2nd Edition* (2010). Appropriate access during construction should be maintained as well.



Bicycling to school is popular for Central Middle School Students.

3.2.2. Arroyo Avenue Midblock Crossing

An uncontrolled marked midblock crossing provides access to the school entrance from Arroyo Avenue. Issues at this crossing include a lack of ADA accessibility and noncompliant “School Xing” signs. “Slow School Crossing” pavement markings are provided on both sides of the crosswalk.

Recommendation (ID #2)

The existing “School Xing” sign used at the crossing should be replaced with the standard set of fluorescent yellow-green Assembly B and Assembly D signs. Additional yielding treatments such as an in-street yield to pedestrian paddle, YIELD stencil, and sharks’ teeth would increase visibility and yielding compliance at the intersection. Curb ramps with tactile domes should be provided on both sides of the intersection to provide access for bicyclists going to the bike parking and for pedestrians with mobility devices or pushing strollers.



The midblock crossing of Arroyo Avenue needs some improvements for accessibility.

3.2.3. Woodland Avenue at Chestnut Street

This intersection acts as a 90-degree bend in the road in front of the main school entrance. The unusual configuration of the intersection provides two marked crosswalks and is uncontrolled. There are some visibility challenges due to the curve of the road and the presence of large trees. The City may consider removing the northern crosswalk to emphasize improvements on the southern crosswalk that provides direct access to the school, but the southern crosswalk alone may not be plainly visible to southbound drivers.

Recommendations (ID #3)

To improve visibility and encourage higher yielding compliance, the existing crosswalks should be upgraded to high-visibility yellow ladder-striped crosswalks. In-street Yield to Pedestrian paddles would also improve visibility, and would need to be placed in both crosswalks. Assembly D advance school crossing warning signs on both crosswalk approaches will help to alert drivers to the crosswalks. The existing “School Xing” sign should be replaced with a compliant Assembly B sign with an arrow showing the school crossing location on the south side of the intersection. A YIELD stencil and sharks teeth will improve visibility.

3.2.4. Cedar Street at Cherry Street

The crossing of Cedar Street at Cherry Street provides students arriving from the north an opportunity to walk on the school side of the street. This intersection sees lower pedestrian volumes than those serving the south of the school, but visibility improvements would increase yielding and improve safety. The west side of the crosswalk lacks a curb ramp and is not ADA-compliant.

Recommendations (ID #4)

Install a curb ramp with a tactile strip on the west side of the crosswalk to provide accessibility to those with disabilities and parents with strollers. Paint red curb in advance of the crosswalk, to discourage drivers parking in a location that impedes visibility of the crosswalk.

3.2.5. Cedar Street Midblock Crossing

A midblock crossing adjacent to the school site on Cedar Street provides access to a school gate. The crosswalk was recently upgraded to a high-visibility crosswalk and has red curb paint along the east side and driveways along the west side that discourage parking. However, the crosswalk lacks curb ramps and pedestrian crossing signs to alert drivers to the presence of the crosswalk.

Recommendations (ID #5)

Provide the standard suite of pedestrian crossing signs, including Assembly B and Assembly D signage from both approaches. Install curb ramps on both sides of the crosswalk.

3.2.6. Cedar Street at Arroyo Avenue

The intersection of Cedar Street and Arroyo Avenue is an all-way stop and a key location for students arriving on all modes of transportation. It is a wide and offset intersection with wide curb radii that encourage fast speeds. Drivers were observed to use the entire roadway, with right-turning cars acting like they had a separate lane.

Recommendations (ID #6)

Short-term improvements include high-visibility crosswalks at all four intersection legs. The City may also consider moving stop signs to increase visibility and pedestrians through-space.



The intersection of Cedar Street and Arroyo Avenue is wide and experiences moderate traffic volumes.

Over the long term, the City may wish to consider improvements that reduce curb radii and shorten crossing distances at the intersection. These enhancements will need to be designed with consideration of drainage issues at the intersection and the role of both streets as designated bicycle routes. The south corner of the intersection lacks curb ramps, and these should be installed in conjunction with any curb radius treatments or earlier if other treatments are not pursued.

3.2.7. Cedar Street at Brittan Avenue

The intersection of Cedar Street and Brittan Avenue south of the school experiences high pedestrian and bicycle volumes and relatively high potential conflicts between users. Students arrive at the intersection from the southeast and southwest and continue northeast towards the school. Brittan Avenue is an important route for commuting motorists and bicyclists as well. Significant delay was observed for motorists at the intersection. Vehicles were observed forming two lanes along Brittan Avenue to provide a right turn lane on the curb side of the bike lane. Other observed issues included poor motorist compliance while pedestrians were in the crosswalk and motorist encroachment into the crosswalk while waiting for their turn.

Recommendations (ID #7)

Upgrade all crosswalks to high-visibility crosswalks. This will increase the visibility of the intersection to motorists. Advance stop bars on Brittan Avenue will enhance visibility when right-turning drivers have formed a lane adjacent to the travel lane, and will also provide additional space in the crosswalk for the high pedestrian and bicycle volumes present.



Advance stop bars may increase pedestrian space and crosswalk visibility

3.2.8. Non-Infrastructure Recommendations

The school currently provides a student handbook to parents and makes the resource available on the school website. It does not currently include instructions for school pick-up and drop-off. This may be an opportunity to reach out to parents to advise them of safe driving behavior and encourage the use of transportation alternatives. This information can also be published in the City's "City of Good Living" newsletter.

Carpooling should be encouraged to reduce congestion around the school. Parents were unaware of the 511.org SchoolPool Tool, but may use it if the tool were advertised to parents. Several families already participate in informal Walking School Buses. The school could advertise and help organize these groups by encouraging families with similar commutes to connect with each other and share the trip.

Poor motorist behavior around the school was identified as an issue during the audit and in comments received. The City should consider a Citywide safety marketing campaign such as StreetSmarts to encourage drivers to slow down and watch for bicyclists and pedestrians. Increasing police enforcement along Brittan Avenue or a crosswalk sting operation at the beacon at the beginning of the school year could also improve compliance throughout the year.

3.2.9. Summary of Recommendations

Table 3-1 lists the recommended improvements to address circulation issues around Brittan Acres Elementary and Figure 3-1 presents an improvement plan of these recommendations. The project identification numbers in Table 3-1 correspond to those in Figure 3-1. The table identifies the agency likely to lead the improvement, the recommended priority level for implementation, and a planning level cost estimate. The priority level is based on the anticipated safety and circulation benefit, the feasibility of implementation, and the projected cost.

Table 3-1: Central Middle School Recommended Improvements

ID	Location	Recommendations	Lead Agency	Priority Level	Cost
1	School Grounds	<ul style="list-style-type: none"> Consider expansion of bicycle parking 	School	Medium	\$1,200
2	Arroyo Avenue	<ul style="list-style-type: none"> Install curb ramps on both sides of crosswalk In-street yield to pedestrians sign Yield text and markings in advance of crosswalk Update school crossing signage Curb ramps at access road south of intersection 	City	High	\$23,200
3	Woodland Avenue at Chestnut Street	<ul style="list-style-type: none"> High-visibility crosswalks In-street yield to pedestrians paddle Yield text and markings in advance of crosswalk Update pedestrian crossing signage 	City	Medium	\$2,800
4	Cedar Street at Cherry Street	<ul style="list-style-type: none"> Install curb ramp Stripe red curb 	City	Low	\$5,100
5	Cedar Street	<ul style="list-style-type: none"> Install curb ramps Install Assembly B and D signage 	City	Medium	\$11,600
6	Cedar Street at Arroyo Avenue	<ul style="list-style-type: none"> Stripe high-visibility yellow crosswalks Install curb ramp Evaluate feasibility of reducing curb radii (Medium) 	City	High/ Medium	\$7,400 - \$97,400
7	Cedar Street at Brittan Avenue	<ul style="list-style-type: none"> High-visibility crosswalks Advance stop bars 	City	High	\$2,800
Total Cost					\$54,100 - \$144,100

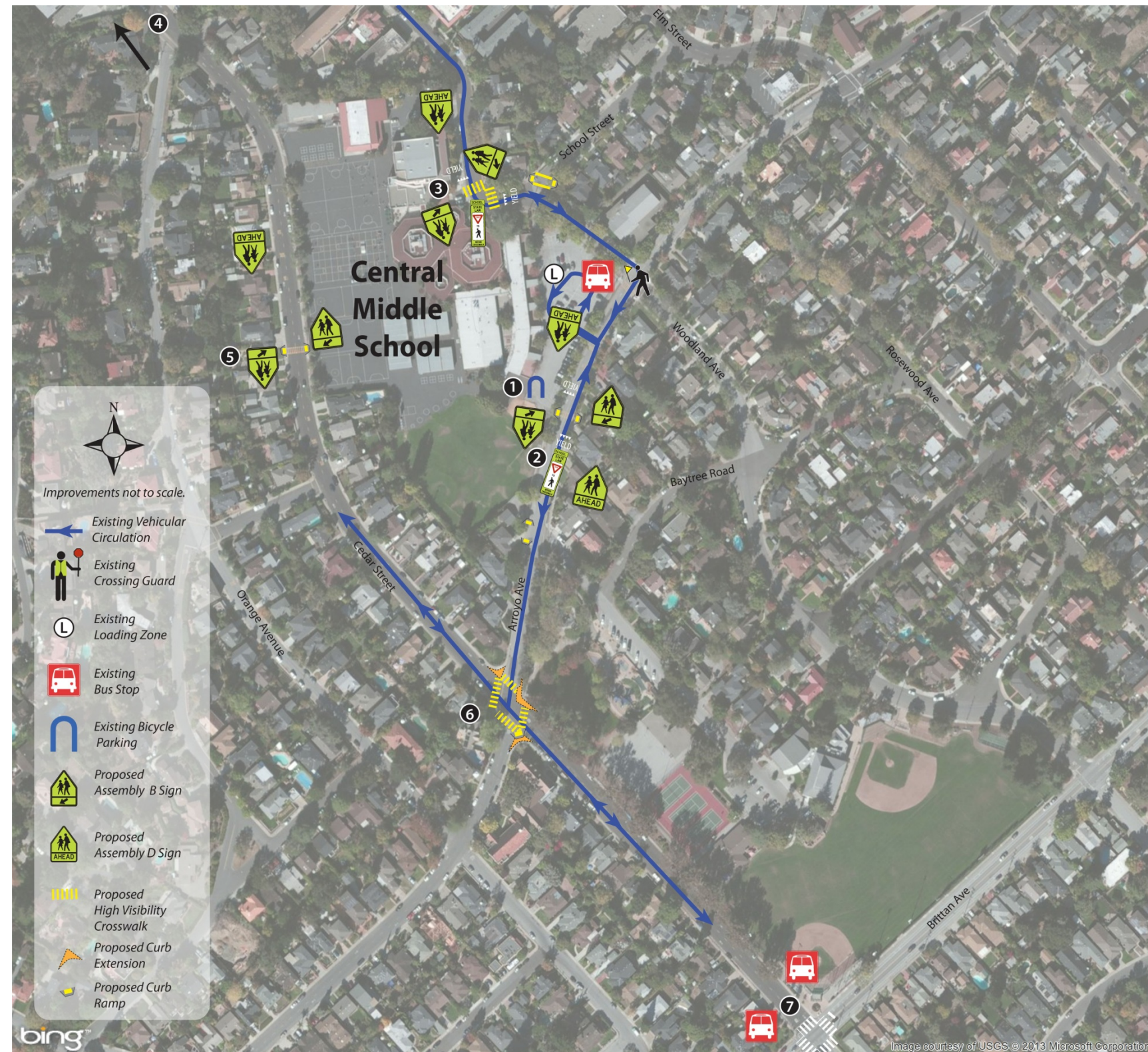


Figure 3-1: Central Middle School Improvement Plan

Central Middle School Recommended Improvements

1 School Grounds

- Consider expansion of existing bicycle parking

2 Arroyo Avenue at School Crosswalk

- Install curb ramps on both sides of intersection
- Install in-street Yield to Pedestrians paddle
- Paint yield text and markings in advance of crosswalk
- Replace non-standard school crossing signage with Assembly B and D signage
- Install curb ramps at access road of the school and check drainage

3 Woodland Avenue at Chestnut Street

- Repaint both crosswalks as yellow ladder crosswalk
- Install in-street Yield to Pedestrians paddle
- Paint yield text and markings in advance of crosswalks
- Replace non-standard crossing signage and install Assembly B signage at crosswalk.

4 Cedar Street at Cherry Street

- Install curb ramp on west side of crosswalk
- Stripe red curb in advance of crosswalk

5 Cedar Street Midblock Crossing

- Install curb ramps on both sides of crosswalk
- Install Assembly D signage at crosswalk

6 Cedar Street at Arroyo Avenue

- Stripe high-visibility yellow crosswalks on all four intersection legs
- Evaluate the feasibility of reducing curb radii at north, east, and south corners of intersection
- Install curb ramp on south corner of intersection

7 Cedar Street at Brittan Avenue

- Stripe high-visibility crosswalks on all four intersection legs
- Install advance stop bars on Brittan Avenue
- Consider stenciling a path of travel through the intersection for bicyclists

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San Carlos Safe Routes to School

Central Middle School Walk and Roll to School Map

What is Safe Routes to School (SR2S)?

SR2S San Mateo County is a countywide program offered by the San Mateo County Office of Education. The goal of the program is to encourage and enable school children to walk and bicycle to school by implementing projects and activities that improve the health, well-being, and safety of children and result in less traffic congestion and emissions caused by school-related travel.

Why SR2S?

SR2S activities can be an opportunity to try taking more active trips on foot or bicycle. Choosing an active transportation mode provides:

- Safer routes to school
- Health benefits
- Decreased traffic
- Community benefits
- Environmental benefits



Walk & Skate

- Always walk with a parent, other students, or a buddy.
- Be alert. Look left, right, and left again before crossing the street. At a four-way intersection, also look over your shoulder for cars that may be turning.
- Cross at corners or at a marked crosswalk. This is where drivers expect you.
- Don't assume drivers see you! Use eye contact and hand signals to communicate before crossing.
- Follow directions from crossing guards and safety patrols.
- Use a sidewalk when available. If there's no sidewalk, walk on the road facing oncoming traffic.



Bike

- Always wear your helmet and buckle it every time; it's the law!
- To best protect your brain, your helmet must fit properly: snug and level on your head, just above your eyebrows.
- Be predictable. Follow the same rules of the road as drivers when riding your bike. This includes obeying ALL stop signs and traffic signals, as well as yielding to pedestrians.
- When riding on the street, ride on the right hand side of the road, in the same direction as traffic. Watch out for turning cars and cars coming out of driveways.
- When riding on the sidewalk, ride slowly and watch out for pedestrians as well as cars coming out of driveways.
- Make eye contact and use hand signals to communicate with drivers and pedestrians.



Drive & Carpool

- Sign up at www.SchoolPool.org to find other families who share your commute to save time & money, while reducing traffic congestion near schools.
- Slow down in school zones or when children are nearby. The safest speed may be below 25 mph; children may struggle to accurately judge speed or distance.
- Do not use your cell phone while driving, even hands-free.
- Yield to pedestrians and bicyclists crossing the street and always follow the directions of crossing guards.
- Make sure children enter and exit the vehicle on the side next to the sidewalk.
- Avoid making U-turns, double-parking, blocking crosswalks, and other unsafe maneuvers.
- Consider parking a few blocks away and walking your child the rest of the way.



San Mateo County
SAFE ROUTES TO SCHOOL
Healthy Kids • Green Communities • Safe Journeys



www.smcoe.k12.ca.us/SR2S

Mindy Hill, San Carlos School District Wellness Coordinator
mhill@sancarlos.k12.ca.us | 650.339.2908

Figure 3-2. Walk and Roll to School Map Front

Central Middle School

Walk and Roll to School Suggested Routes

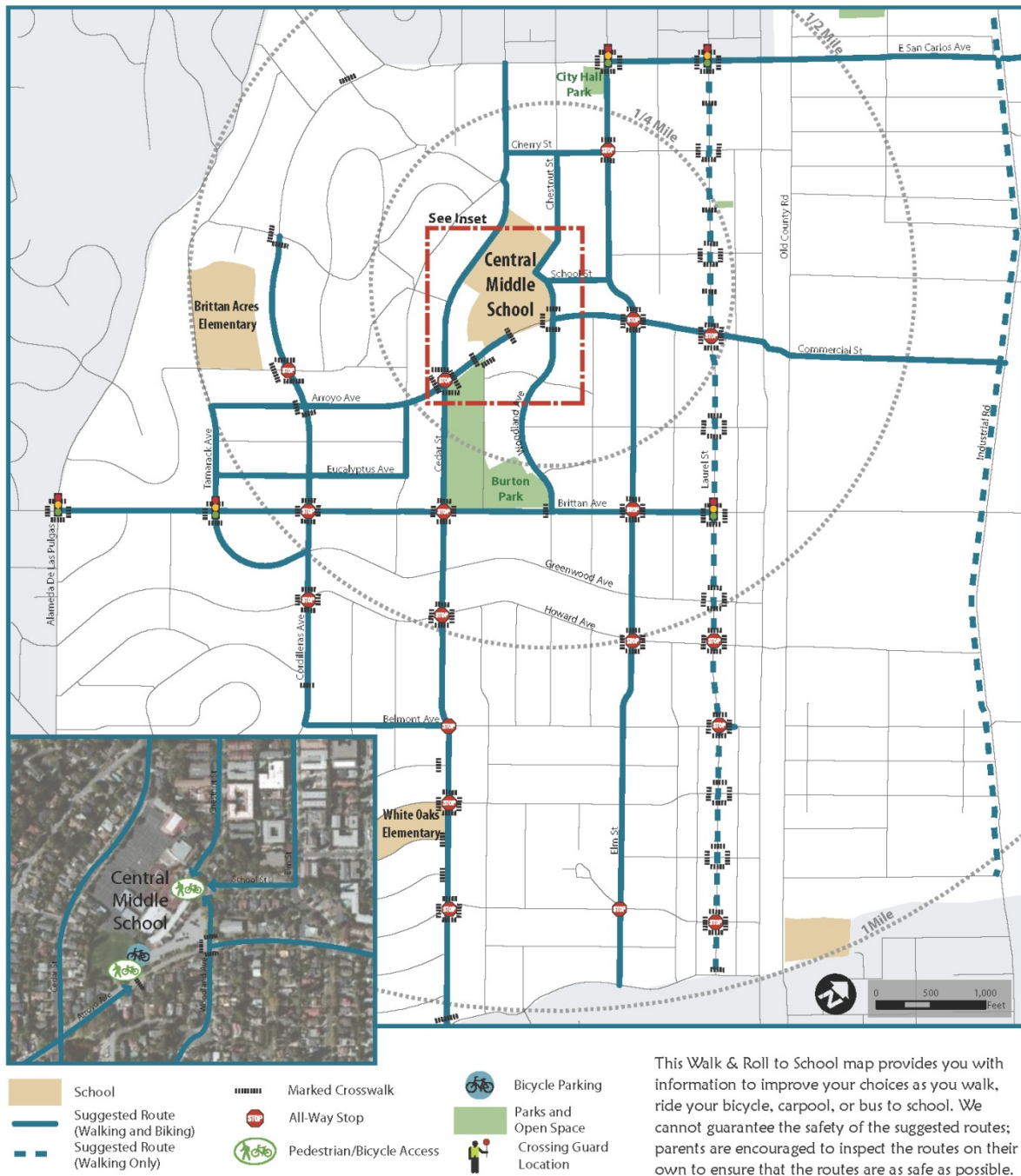


Figure 3-3. Walk and Roll to School Map Back

4. San Carlos School District-Wide Overview and Recommendations

This chapter presents common issues reported and observed at both of the schools studied as part of this report, and are common issues at many schools. Recommendations addressing these issues are programmatic and, in some cases, will require coordination between the District, City and Police Department. The crossing guard program is one such program that does not have funding for the 2012-2013 school year, but plays a critical role in maintaining the safety of students and parents around schools.



School site visits informed the recommendations of this report

The continuation of a crossing guard program, along with other programmatic recommendations, is intended to create a unified sense of safety and order during school commute times.

The continuation of existing programs or implementation of new programs may require support from multiple partner organizations and funding sources. A Safe Routes to School Action Plan may be necessary to start this coordinated effort to reduce school related congestion and foster active lifestyles among the community.

4.1. District-Wide Issues

After collecting school administrator and public input, the project team identified the following issues common at San Carlos School District schools:

- Reported high traffic speeds
- Conflicts between bicyclists, pedestrians, and vehicular traffic around schools
- Traffic violations including ignoring traffic rules and crossing guards
- Missing curb ramps at crosswalks

4.2. District-Wide Program Guide

The recommended programs below address these common issues. The recommendations are organized by District-sponsored and City-sponsored programs and address the “4 E’s” of Safe Routes to School. The San Mateo County Safe Routes to School Program Guide provides additional information about the recommended programs and includes additional potential encouragement and educational programs. The Program Guide is available at the following website: <http://www.smcoe.k12.ca.us/sr2s>

4.2.1. District-Sponsored Programs

Staggered Arrival and/or Dismissal Times

Schools can reduce congestion and traffic around drop-off and pick-up times by modifying their bell schedule. The San Carlos School District should conduct traffic counts to determine whether a staggered bell schedule would likely improve traffic circulation during peak hours.

School Safety Campaign

At both schools, parents and school administrators expressed concern about unsafe motorist behavior. Such behavior, reported and observed, includes illegal turning movements, illegal parking and speeding.

A School Safety Campaign implemented through a variety of media outlets can reduce the frequency of illegal and unsafe driving behavior. An example safety campaign is “Street Smarts”, which communities throughout the San Francisco Bay Area have implemented with great success. The Street Smarts campaign provides implementing agencies with customizable materials about traffic safety for radio, TV, classrooms, outdoor media and much more. These high quality materials show the community that the District and City value safe school commuting. The District may consider working with the City to develop or purchase a similar campaign.

School Pooling

School Pooling is a school specific ride matching service that encourages families to commute to school together. Such a program may reduce school related congestion, particularly at schools where families live within close proximity of school but do not feel comfortable walking to school. This scenario is thought to play out at many schools due to the amount of congestion relative to the small enrollment areas.

As a first step, the District may consider gauging parent’s interest in School Pooling (see the following evaluation recommendation). If interest is high, a district-specific matching service may be appropriate. If interest is moderate, an option is for the District to promote existing ride matching services. The Peninsula Congestion Relief Alliance provides commuter incentives to parents who carpool and Metropolitan Transportation Commission provides matching services at the websites below.

<http://www.commute.org>

<http://www.schoolpool.511.org>

Walking School Bus/Bike Train Programs

Walking school buses and bike trains are organized groups of children walking or biking to school with an adult. Unofficial walking school buses already exist at Brittan Acres Elementary This addresses parental fear of permitting children to walk or bike to school alone; a fear shared at many schools in the district. In addition, shifting parents away from driving to school may reduce congestion, improve air quality and encourage active communities.

The District may consider a walking school bus/bike train training and an online matching service. The website below outlines walking school bus implementation in further detail.

http://guide.saferoutesinfo.org/walking_school_bus/index.cfm

Increased Enforcement

Community input indicated that motorist behaviors in school neighborhoods are an issue, including speeding, making illegal turning movements, and persistently parking in crosswalks. Enforcement of school related traffic should be used sparingly as to not overwhelm the police department. Sustainable enforcement programs are school and community driven and supported by the police department when needed.

The District may consider volunteer issued school parking “citations” as a first measure to deter unlawful motorist behavior. These citations are designed to look like police citations but merely educate motorists about their infraction and how their action negatively affects traffic circulation and pedestrian safety. Dedicated safety patrol (adult) volunteers are good candidates for issuing citations. If problems persist, or negligent motorists become irate, the police department should be called upon to increase enforcement and conduct crosswalk stings.

Since speeding is a reported issue on several streets in the area, a mobile speed feedback sign could be purchased by the City and placed on streets as needed.

Student Hand Tallies and Parent Surveys

Collecting and analyzing school commute data is an excellent way to support grant applications and other funding applications. Hand tallies and parent surveys inform decisions to start, continue and improve programs.

Student Hand Tallies ask students to raise their hands in response to the commute mode they use to get to and from school. Typically the teacher administers the survey, which only takes a few minutes.

Parent surveys also ask how students get to and from school, but because the parent completes the questionnaire, they are also asked about the factors that influence their school commute mode choice and if they are interested in participating in SR2S programs.

The National Center for Safe Routes to School provides Student Hand Tally and Parent Survey forms and will enter the data from those forms. This can be a cost effective way to understand how families get to and from school, and the reasons for their mode choice. The District should consider administering one or both types of surveys. More information about survey administration and collection can be found at the following website.

<http://www.saferoutesinfo.org/data-central/data-collection-forms>

Chapter 4

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Appendix A. Example Engineering Devices and Cost Assumptions

Design of the physical environment around schools are integral to a comprehensive Safe Routes to School Program that ensures walking, biking, and other “green” forms of travel are easy and safe. The engineering improvements presented in this report follow the standards set forth by the California Department of Transportation (Caltrans). Most of the proposed signage and striping improvements are relatively simple and cost effective to install when compared to more intensive engineering devices, such as curb extensions and paths. Planning level construction cost estimates for the recommendations are intended to inform the reader and are provided for informational purposes only. Costs may change as recommendations are implemented.

In accordance with Caltrans and industry standard terms, “shall” “should” or “may” are used to denote when to install the example engineering devices. *Shall* is used when an improvement is required to be installed under pre-defined conditions. *May* is used when an improvement installation is optional under pre-defined conditions. *Should* is used when an improvement supports the effectiveness of required improvements.

4.2.2. Signage

School related signage warns motorists of a school zone or crosswalk and regulates their movements to ensure the safest conditions possible for pedestrians and bicyclists. Warning signs and regulatory signs with posts typically cost around \$400 and \$200 each, respectively.

Warning Signs

Assembly A



May be installed up to 500 feet in advance of a school.

Assembly B



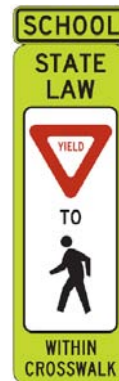
Shall be installed at an uncontrolled crosswalk (no stop sign).

Assembly D



Shall be installed 100 feet in advance of an uncontrolled crosswalk.

In-Pavement Sign



May be installed in an uncontrolled crosswalk.

Regulatory Signs

No Turn



No Right and Left Turn signs are typically used to improve circulation and reduce queue lengths.

No U-Turn



No U-Turn signs are typically used to reduce conflicts with pedestrians and motorists.

Loading Zone



Loading zones designate a pick up/drop off location and may include a plaque allowing parking during off-loading times.

School Speed Limit



May be installed up to 500 feet in advance of a school and is installed with a time sensitive flashing beacon. Engineers determine the posted speed.

4.2.3. Striping

School related striping includes crosswalks and curb colors. Bicycle lane striping and markings can be also considered school related. Bicycle-related striping improvements, however, were not recommended in this report. Thermoplastic is recommended for striping improvements. Thermoplastic costs about \$2 per square foot, equating to \$200 to \$400 for crosswalk installation.

Crosswalks

Crosswalks connect one corner of a street to the opposite side and do not have to be marked with paint or thermoplastic unless where no corner exists (mid-block crosswalk). In California, yellow crosswalks can be used on roadways where students frequently cross. Caltrans standard is for all crosswalks contiguous to schools to be yellow. Crosswalk may also be yellow if within 600 feet of a school or school grounds. White crosswalks are used in all other areas.

High Visibility Crosswalk



High visibility crosswalks have longitudinal and latitudinal lines.

Transverse Crosswalk



Transverse crosswalks have latitudinal lines.

Lighted Crosswalk



Pedestrian activated lights may be installed on a sign and/or in the pavement.

Curb Colors

School Loading Zone curbs are white.

Freight/Bus Loading Zone curbs are yellow.

Accessible curbside parking curbs are blue.

No Parking Zone curbs are red.

4.2.4. Curb Extensions

There are a range of devices that work to reduce motorist speeds. This report recommends curb extensions in many locations, most of which are skewed intersections (where streets do not intersect at 90 degree angles). Curb extensions are recommended where the radius of a corner could be increased to reduce the speed of turning vehicles, discourage U-turns, and/or reduce crosswalk distance. The cost of installing a curb extension depends of several circumstances including the presence of drainage utilities. On average, curb extensions typically cost around \$30,000 each to install.

Curb Extension



Curb extensions reduce the width of a roadway.