Alta Loma MS & Buri Buri Elementary: Safe Routes to School Workshop Summary

Prepared for: The Alta Loma & Buri Buri School Communities and San Mateo County Office of Education
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Intrepid walk auditors, March 2024.

Summary

Members of the Alta Loma Middle School and Buri Buri Elementary School communities and surrounding area, including school faculty and administrators, parents, advocates, area residents, community leaders, South San Francisco Department of Public Works professionals, and representatives of the San Mateo County Office of Education participated in a Safe Routes to School walk audit and planning session March 26, 2024. The workshop resulted in the following key recommendations to improve pedestrian, bicycle, and motor vehicle safety, and encourage more walking and bicycling to school. (See simple summary maps on page 15.)

1. Launch a campaign to promote walking, bicycling, and transit to school and encourage safe driving near the schools; initiate student supports such as data collection and safety patrol. (Pg. 4)
Promote walking and bicycling to school to students and parents; launch walking school buses and bicycle trains; begin a "no parking on sidewalks" campaign; at dismissal, release pedestrians, bicyclists, and transit riders while holding vehicle pick-up for several minutes to minimize conflicts.
1a. Alta Loma MS: Engage the Middle School students in collecting objective before/after data such as vehicle speeds; vehicle, pedestrian, bicycle, and transit rider counts; vehicle yielding for pedestrians; and delay on Del Monte Avenue.
1b. Buri Buri Elementary: Launch safety patrol for fifth graders; and stagger dismissal by grade levels, to ease vehicle congestion.

2. Create a school zone and bicycle boulevard along the length of Del Monte Avenue. (Pg. 7)
Active South City, the 2022 bicycle and pedestrian plan for South San Francisco, recommends Del Monte Avenue be a Class IIIB bicycle boulevard so that a broad range of cyclists are comfortable riding there. This entails slowing traffic with signs and pavement markings along the full length of the corridor; improvements such as curb extensions at the Romney Avenue and El Campo Drive intersections, a mini-circle at San Felipe Avenue; a speed table between Romney and Lacrosse Avenues; and high visibility crosswalks at El Rancho Drive and at the west end of the Buri Buri school driveway.

3. Additional improvements near the Alta Loma Middle School. (Pg. 9)
Paint high visibility crosswalks on Orchid Drive, Freesia Drive, and McLellan Drive for pedestrians passing through Alta Loma Park toward pick-up in the parking lots, or toward El Camino Real.

4. Additional improvements near the Buri Buri Elementary School. (Pg. 11)
Improve safety of the El Campo Drive crosswalks at Indio Drive by moving the Boys & Girls Club bus to the lower parking lot, and adding curb extensions. Create a pathway along the edge of the teacher parking lot from the El Campo Drive sidewalk to the school's side entrance sidewalk. Restrict vehicle access to the teacher parking lot at dismissal.

Background

The Alta Loma Middle School and Buri Buri Elementary School communities have been involved with a Safe Routes to School initiative, facilitated by the San Mateo County Office of Education Safe Routes to School team. This effort included a Safe Routes to School walk audit and planning session with school faculty and administrators, parents, advocates, area residents, community leaders and staff, South San Francisco Department of Public Works professionals, and representatives of the San Mateo County Office of Education on March 26, 2024. The workshop resulted in programmatic, infrastructure project, and policy level recommendations to improve pedestrian, bicycle, and motor vehicle safety, and encourage more walking and bicycling to school. The working group recognized that one of the most formidable challenges faced by many caregivers in deciding whether to allow students to walk or bike to school is the traffic that is generated by the schools themselves at arrival and dismissal times.

This can form a vicious cycle: more traffic makes it feel unsafe to walk or bike, therefore fewer children do so and are driven to school, thus creating even more traffic around the school. The goal of this work is to create a virtuous cycle: encourage those students (and adults) who can walk and bike safely to school to do so, and create safer settings for walking and bicycling. This begins to ease traffic congestion in the school area, which then makes it more inviting for even greater numbers of students to walk and bike. It was agreed that this is the ultimate goal of this work: *not* to make vehicle drop-off and pick-up traffic move more quickly, which actually increases the danger of collisions, but to make walking, bicycling, and taking transit safer and ultimately more appealing to more of the school community.

Priority Recommendations

The workshop group was encouraged to consider three broad categories of intervention, called the three Ps.

- **Programs.** Events, outreach, education, encouragement, data collection, and promotional activities.
- **Projects.** Physical changes to infrastructure and the built environment to support active transportation.
- **Policies**. Rules, ordinances, guidelines, practices, and procedures supporting the active travel modes.

The group discussed both short-term ideas that could be executed on the order of weeks to months, and longer-term initiatives that might cost more and take months to even years. This was to assure that we identified some lower-cost near-term actions that can be pursued quickly to build momentum and begin making it safer for students immediately. All of these recommendations have merit and taken together they comprise a very comprehensive approach to making a safer setting for walking and bicycling. It is recommended that a joint school-community-city working group be created to continue to work on implementation of these priorities, as it is not the sole responsibility of the schools to carry out these goals. Following are the key recommendations broken into the broad areas summarized at the beginning of this memo.

1. Launch a campaign to promote walking, bicycling, and transit to school and encourage safe driving near the schools; initiate student supports such as data collection and safety patrol.

(Recommended leads: School administration, parent-teacher organizations/interested parents.)

The schools are just blocks apart on Del Monte Avenue, and together should launch a campaign to encourage those students who live nearby (and have a safe enough route) to walk and bicycle to school. This can be accompanied by an effort to promote safer driving by those driving to school and others in the community to drive safely and adhere to neighborhood speed limits. This should include but by no means be limited to the following:

Promote walking and bicycling to school directly to students through announcements, assemblies, classes (e.g. health, physical education, geography), and fun walk and roll school events. Target messages to parents and caregivers through newsletters, social media, parent-teacher conferences, and engage them together with children during May Bike Month and October Walk & Roll to School Month activities, such as completing walkability/bike-ability checklists assessing their routes to school.

Launch walking school buses and bicycle trains. These are groups of students walking or biking to school together with an adult, on a planned route and schedule, picking up other students along the way. They can be organized informally by friends and neighbors, or the school can help organize neighborhood groups.

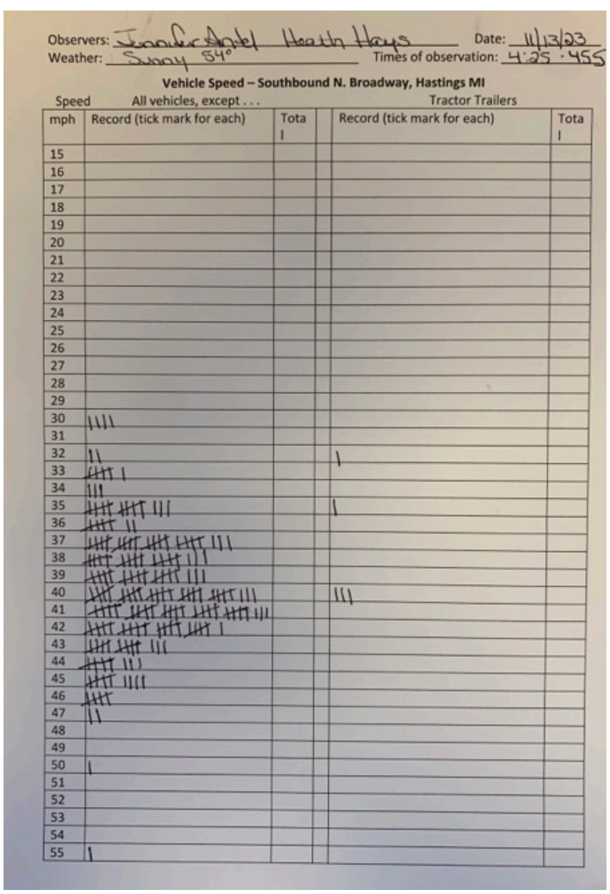
Release pedestrians, bicyclists, and transit riders first to minimize vehicle conflicts. Both schools have challenges with pedestrians and bicyclists (and bus riders at Alta Loma) having difficulty crossing key intersections near the school at dismissal because of the vehicles trying to move through to pick-up students. One solution is to place a safety delay on the motor vehicle pick up right at the schools, so vehicles are not moving there while pedestrians are crossing roadways. Pedestrians, bicyclists, transit riders, and those students walking to distant pick-up locations (such as the Alta Loma Park parking lot) can be released first so they can safely cross key intersections. Students going to vehicle pick-up can be released several minutes later.

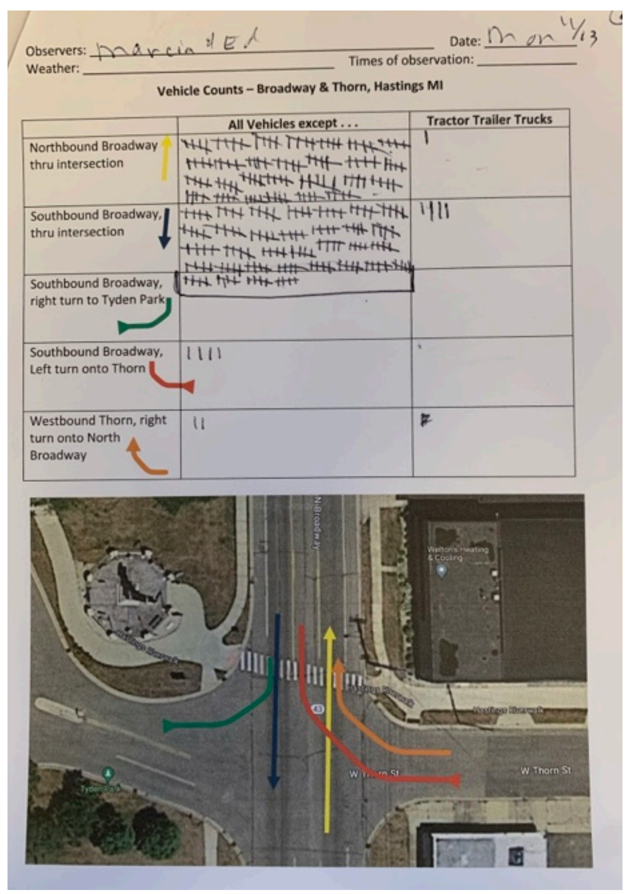

Del Monte Avenue

Launch a "no parking on sidewalks" campaign. (Recommended leads: School, neighborhood residents, SSF law enforcement.) It is common throughout the neighborhood in areas with rollover curbs to observe cars parked with their right tires up on the sidewalk (photo at left). This is illegal, and in many cases makes sidewalks impassable (and certainly not compliant with the Americans with Disabilities Act). The entire community should be engaged in a campaign to completely discourage parking on sidewalks through signs, social media messaging, law enforcement warnings, and eventually even citations. The students can partner with parents and local residents to post artistic signs and images reinforcing this message: "Please give us room to walk safely!"

1a. Alta Loma: Engage the Middle School students in collecting objective before-and-after data.

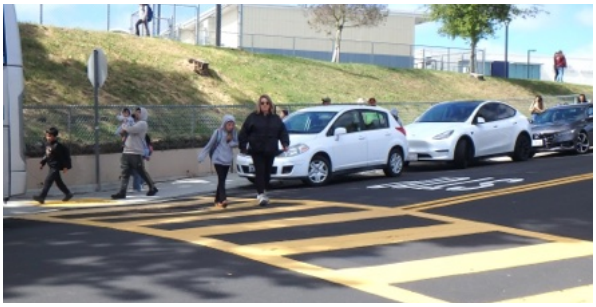
(Recommended leads: School faculty and administration; with DPW technical assistance.) Improvements such as curb extensions, high visibility crossings, rectangular rapid flashing beacons, and mini-circles are expected to help slow traffic and improve vehicle yielding for pedestrians. This eventually is hoped to increase the numbers of students walking and bicycling to school. Middle school math, science, civics, and other classes can collect objective data before and after the implementation of programs, infrastructure, and policy changes to measure whether they have in fact made any difference. Below are examples of data sheets used by students for collection of speed data (left) and vehicle, pedestrian, and bicycle counts (right).





Locations to consider (as well as others) for the collection of data:

- The school vehicle drop-off and pick-up areas.
- Del Monte Avenue, especially crossings at El Campo Drive (photo at right), San Felipe Avenue, and Romney Avenue.
- El Campo Drive crosswalks at Indio Drive (photo below).
- Crosswalks at McLellan Drive and Orchid Drive, at Alta Loma Park.



Relevant measures that citizen scientists (students and adult volunteers) can easily collect:

- **Vehicle speed data,** especially along Del Monte Avenue.
- **Vehicle, pedestrian, and bicycle counts** arriving and departing school grounds and traveling on Del Monte.
- **Vehicle yielding behaviors for crossing pedestrians** on Del Monte Avenue at Romney Avenue, San Felipe Avenue, and El Campo Drive. This can entail counting the number of vehicles that pass before one yields for a waiting pedestrian; or the time a pedestrian must wait for a break or yielding vehicle.
- **Vehicle delay,** specifically at peak traffic times (such as school dismissal). For example, how long on average it takes a vehicle on Del Monte Avenue to pass the section from El Campo Drive to Romney Avenue. This data will be needed to respond to concerns that creating a bicycle boulevard on Del Monte Avenue (recommendation #2) will dramatically increase travel times down this roadway. In fact, it is likely that school related traffic creates by far the greatest delays on this roadway, and over time efforts to *increase* walking and bicycling and *reduce* vehicle traffic could significantly reduce travel delays through this area.

1b. Buri Buri: Safety patrol and staggered dismissal.

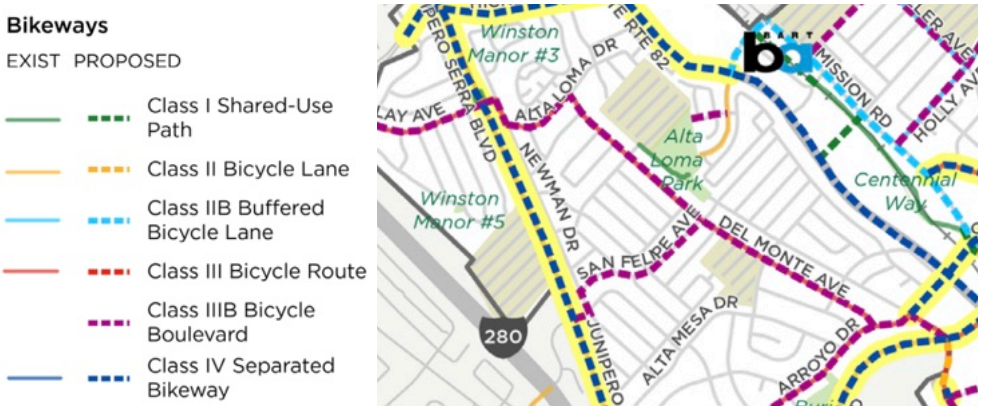
(Recommended lead: School administration and faculty; parent volunteers.)

- **Launch a safety patrol at Buri Buri Elementary school.** This could be upper grade students with specific responsibilities at arrival and dismissal time such as placing and removing cones or sawhorses where needed (such as at driveway entrances, or along walkways); opening vehicle doors for students during morning drop-off, so that adults do not get out of their vehicles; and if allowed, assisting the crossing guard at El Campo Drive and Del Monte Avenue (photo above right) by holding back pedestrians until signaled to cross.

- **Staggered dismissal by grade(s).** To ease congestion the work group suggested as well as releasing pedestrians and bicyclists first, Buri Buri could further stagger dismissals by grade level (e.g. K-1-2 at one time; 3-4-5 slightly later). If grade levels are separated by enough time, this could somewhat ease the significant traffic congestion at dismissal.

2. Create a school zone and bicycle boulevard along Del Monte Avenue.

(Recommended lead: City of South San Francisco, e.g. elected officials, DPW.) Parents and school administrators are concerned about vehicle speeds near and between the schools on Del Monte Avenue. Importantly, in the recently adopted (2022) bicycle and pedestrian plan for South San Francisco, *Active South City* (see link in resources, page 13), Del Monte Avenue is identified to be upgraded from a Class III bicycle route to a Class IIIB bicycle boulevard. The Class III designation requires only identifying signage and shared use arrow pavement markings (sharrows, photo above). The *Active South City* plan (a portion of the plan's map is below) acknowledges that this Class III type of bike route is really only "comfortable for people who are more confident biking," suggesting a fairly high level of bicycling skill and experience is required.



Given that there are two schools and Alta Loma Park along Del Monte Avenue, many who might be bicycling to the school and the park are not necessarily highly skilled and experienced, if only because of their youth. It is therefore entirely logical that Del Monte Avenue be identified as a Class IIIB bicycle boulevard in the plan, which is appropriate for "people with a broader range of comfort levels." Tools such as roadway bicycle markings (e.g. photo below), signs, and traffic calming features such as speed humps and traffic diverters that slow down or reroute cars are recommended in the city plan. Note that slower traffic speeds and less cut-through traffic will benefit all of the residents of this dense neighborhood, not just those going to school. San Felipe Avenue and Orchid Drive are identified to become bicycle boulevards as well. Following are specific actions that will support slower speeds for a school zone, and creation of a bicycle boulevard along Del Monte Avenue.

The intersection of Del Monte Avenue and San Felipe Avenue.
Near term:

- Paint **high visibility crosswalks**. (Current conditions at right.)
- Add **painted curb extensions** on all four corners, as there are parking lanes on both sides of both streets. This will help to shorten what are now very long crosswalks. If possible, add vertical delineators on the curb extensions on the four approaches to the crosswalks (to preclude crossing pedestrians from having to step out from behind illegally parked cars).
- **Paint the parking lanes on Del Monte Avenue**, to help visually narrow the travel lanes and, by defining the width of the parking lane help discourage the parking of vehicles up on sidewalks.

Medium term. This is an ideal intersection to test out a **quick-build mini-circle**, to get the diameter and geometry correct and assure ease of passage for buses and large vehicles (East Palo Alto example, at left). There are a number of advantages of a small roundabout (or mini-circle) compared to a four-way stop at this type of intersection:

- At the many off-peak travel hours of the day, each vehicle is not required to stop when there is no cross traffic; but they must always slow to pass around the circle.
- This reduces unnecessary idling and emissions in the neighborhood.
- A circle can ease the driver frustration at stopping when there is no cross traffic (which leads some drivers to "roll through" the stop sign, or to accelerate aggressively after stopping).
- A landscaped circle can also reduce paved surface area and storm water run-off.

Long term. The first recommendation is to **formalize the mini-circle**; this is preferred because of its strong traffic calming effect and advantages just listed (example at right, in Berkeley). As a second choice, construct permanent curb extensions and move the stop signs out onto the curb extensions to help improve driver adherence.

Consider a speed table on Del Monte Avenue between Lacrosse and Romney Avenues. This is an uninterrupted straight stretch of the road, and if this is to be a true bicycle boulevard this may be an area that requires further traffic calming. It would be an ideal section in which to have the students collect pre-intervention speed data to see if vehicle speeds are actually an issue here. If so the following is recommended:

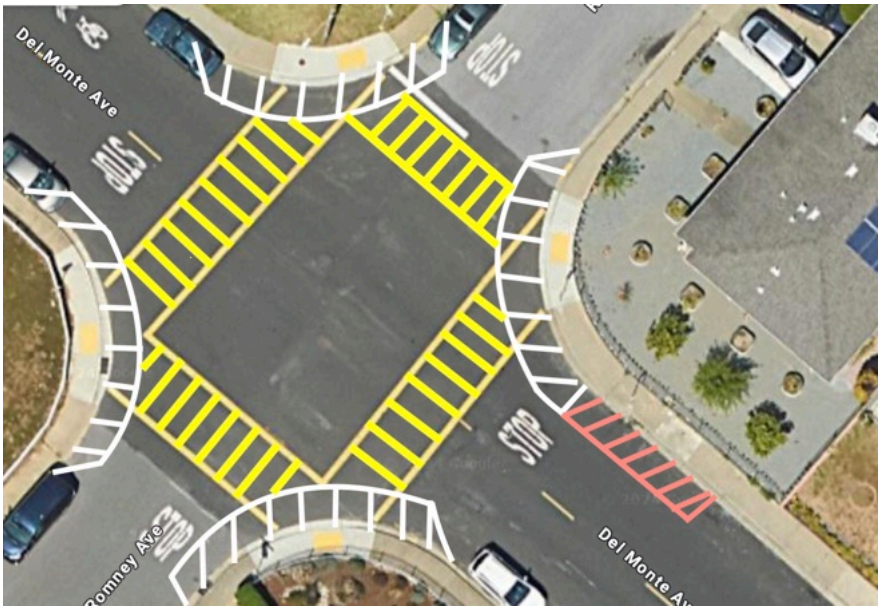
- **Near term:** Place signs and paint an "apparent" speed table with approaching deceleration lines (white lines across the travel lane placed progressively closer so they give a driver the impression of accelerating), shark's teeth, and a colored 'table top' area. Citizen scientists can then again collect data and determine if there is a traffic calming effect. If not, removable speed cushions can be placed to measure their impact.
- **Long term:** If it is deemed necessary, an actual speed hump or speed table can be installed to more effectively calm traffic; an example with a crosswalk is shown at right.

3. Additional infrastructure improvements near the Alta Loma Middle School.

(Recommended leads: City of South San Francisco, with SamTrans for transit stop recommendations.) The following additional infrastructure improvements will serve to make pedestrians, bicyclists, and transit riders near Alta Loma school safer, and support the school zone and bike boulevard designations on Del Monte Avenue.

Improve safety and visibility at the Romney Avenue intersection.
Near term (schematic at right):

- Paint **high visibility crosswalks** on all four legs of the Del Monte Avenue – Romney Avenue intersection.
- **Paint curb extensions** on all four corners and assure that the red curb paint is up to date on all four corners, to discourage vehicles from parking illegally close to the crosswalks; these are the white hashed areas in the schematic at right.



- **Paint the bus stops** on Del Monte Avenue with "Bus Only" pavement markings and red paint (red hashed area in the schematic; photo at right).
- **Paint a large Alta Loma Ram mascot** image in the intersection. With permission and in cooperation with the city, engage students and their families in this painting; e.g. as part of an annual school picnic or arts festival.

Longer term:

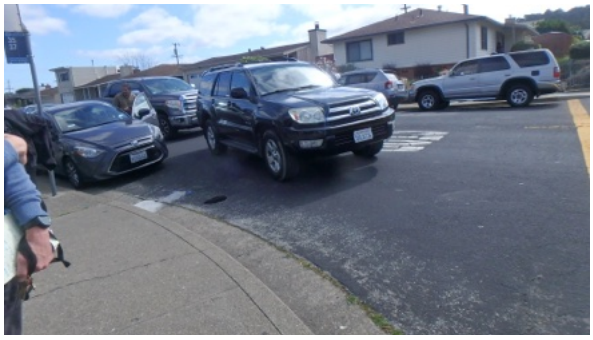
- **Add concrete for the curb extensions** after they have been well established (photo at left is near Sunshine Gardens Elementary School in South San Francisco).

- **Add vertical delineators** to create protected space for students waiting for the bus on the east corner who are currently spilling into the street (photo above).
- **Widen the sidewalk on Romney Avenue**, from Del Monte Avenue to the school. At school release students are walking in the street among the cars because the existing sidewalk is so narrow. Initially a walkway can be created next to the sidewalk with paint and vertical delineators if necessary, eliminating the parking spaces on the east side of this short stretch of Romney Avenue between Del Monte Avenue and the school.

Paint crosswalks through and to the north of Alta Loma Park. A significant number of students are walking through Alta Loma Park to meet vehicles in its parking lots (photo at right), or to cross to Orchid Drive (photo below), and even to walk to McLellan Drive and down to the retail district at El Camino Real. Paint school zone high visibility crosswalks on Orchid Drive, Freesia Drive, and McLellan Drive for pedestrians coming through Alta Loma Park and heading toward El Camino Real.

Place a crosswalk on Del Monte Avenue at El Rancho Drive. Presumably (and understandably) to avoid the heavy traffic and delays crossing Del Monte Avenue at Romney Avenue at dismissal, a number of students walked west on the north side of Del Monte Avenue and then crossed as they got closer to El Rancho Drive. A painted high visibility crosswalk at one of the El Rancho outlets could serve these students, as well as neighborhood residents accessing the nearby bus stops. Because these are uncontrolled intersections this could be an appropriate location for a rectangular rapid flashing beacon (RRFB), all of which is in alignment with the bike boulevard and school zone speeds on Del Monte.

Place "no parking" restrictions on the short section of Romney Avenue during arrival/dismissal hours. The portion of Romney Avenue from Del Monte Avenue to the school is very congested with traffic, pedestrians, and a few bicyclists during school dismissal. Some vehicles were seen attempting U-turns to exit after picking up students. As a matter of safety it may be necessary to place "no parking" signs timed for school arrival and dismissal.



Typical pick-up vehicle congestion at Romney and Del Monte Avenues.

4. Additional infrastructure and safety improvements near the Buri Buri Elementary School.

(Recommended lead: City of South San Francisco for Del Monte Avenue and El Campo Drive; school administration for campus pathway and drop-off/pick-up procedures, including Boys & Girls club bus.) A series of additional measures will reinforce the school zone and bicycle boulevards on Del Monte Avenue, and improve safety throughout the Buri Buri Elementary School area.

Improve the safety of the Del Monte Avenue and El Campo Drive intersection. The intersection of Del Monte Avenue and El Campo drive will benefit from the same recommendations given for Del Monte Avenue and Romney Avenue. These will be particularly helpful for the crossing guard working at this intersection.

- **Paint curb extensions** on all four corners and assure that the red curb paint is up to date on all four corners to discourage vehicles from parking illegally close to the crosswalks.
- On the four approach corners **place flexible delineators** to assure vehicles physically cannot "crowd the crosswalk;" this provides waiting space and effectively shortens the crossing distances on each crosswalk. If successful, in the long term create **permanent concrete curb extensions.** (See photo, page 10.)
- **Paint a large Buri Buri Bobcat mascot** in the intersection. With permission and support of the city, engage students and their families in this painting; for example, as part of an annual school picnic or arts festival.

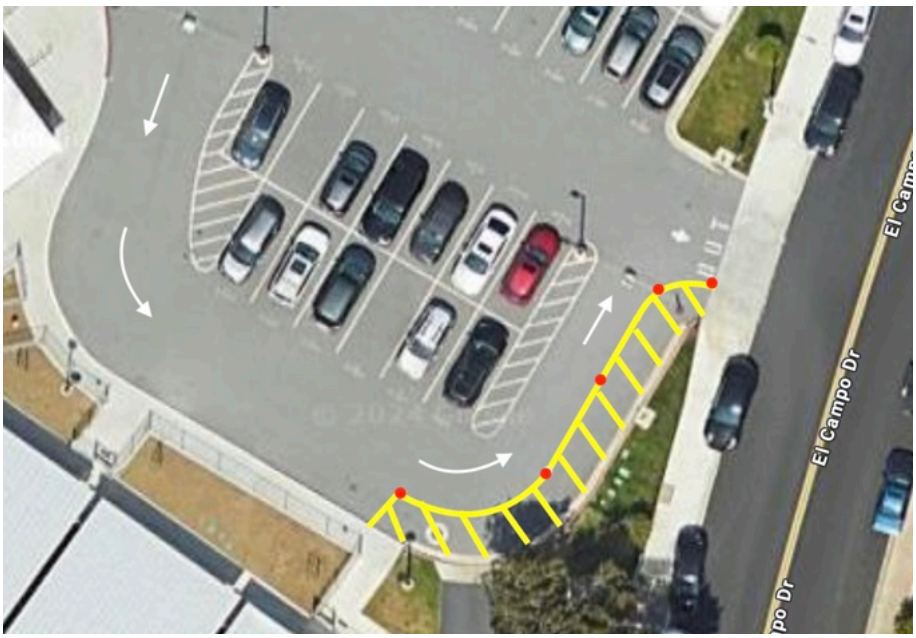
Add a crosswalk on Del Monte Avenue at the west end of the school driveway. Many parents are observed parking across Del Monte Avenue and on nearby neighborhood streets and walking to pick up students. As pedestrians they cross at many places along Del Monte Avenue, including at a discoloration in the asphalt at the west end of the school front driveway loop. This would be an ideal location for a crosswalk to give these adults and students a safe crossing location. This could be given a speed table treatment (as described and shown on page 9) for the location between Lacrosse and Romney Avenues. It could also be a conventional crosswalk with red painted curb and painted curb extensions on the approaches to preclude cars from parking illegally close to the crossing (the painted curb extensions are white in the simple schematic at right). The advantage of the raised (speed table) crosswalk is that no ADA curb ramps are required on the two sidewalks; and it contributes to calming traffic by the school on this bike boulevard. It may be found appropriate to include rectangular rapid flashing beacons (RRFB) to help improve vehicle yielding. This is another important location for student scientists to collect before and after speed and yielding data.

Improve safety of the El Campo Drive crosswalks at Indio Drive.

Change the policy regarding the Boys & Girls Club bus, which currently parks along the curb in this intersection (photo at right). This bus creates a great hazard for pedestrians crossing El Campo by significantly impeding visibility. The bus can be easily relocated to the parking lot a short distance down the hill without greatly increasing the students' walk to the bus from the school. The bus can sit just inside the parking lot entrance so that students walk on the sidewalk, and then right into the parking lot and directly onto the bus, without crossing any roads or driveways. Further steps:

- **Paint the red curb "no parking" zones** preceding these crosswalks.
- **Add painted curb extensions**, and when possible install flexible vertical delineators on the approaches to assure cars can not park adjacent to the crosswalks (as the vehicle in the photo above has done).
- If found effective (ideally based on data collected by the student scientists), in the long term create **permanent concrete curb extensions** to preclude illegal parking at this intersection (see photo page 10).

Connect a pathway from El Campo Drive to the sidewalk into the school's side entrance. Students and adults walking on El Campo Drive have to walk through the side parking lot exit driveway to access the sidewalk along the school. This is particularly dangerous at arrival and dismissal given the vehicles exiting this driveway. The working group recognized that an immediate solution is needed, and also that there is adequate width in the driveway loop to create a protected walkway for pedestrians.

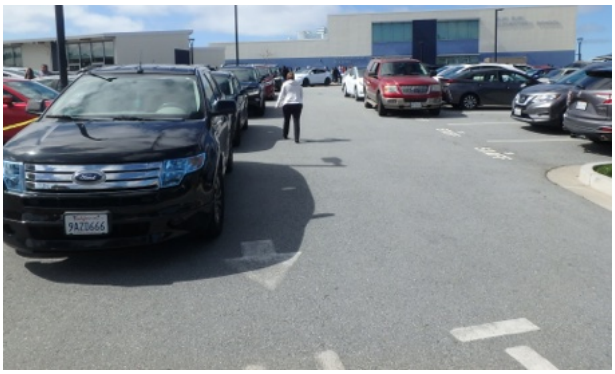


Near term: Paint a five- to six-foot wide pathway along the southern edge of the exit driveway and along the loop, linking to the pathway to the back fields and the school sidewalk (schematic shown at left). Add directional arrows to the vehicle lane; cones and simple plastic A-frame barricades can be placed by safety patrol to mark off this walkway.

Medium term: Add curbing material (example shown below), painted bobcat paws, and if necessary several vertical delineators (red dots in schematic at left) to mark this pathway.

Long term: A sidewalk can be constructed alongside the driveway, although the steep hillside in this area may render this fairly costly.

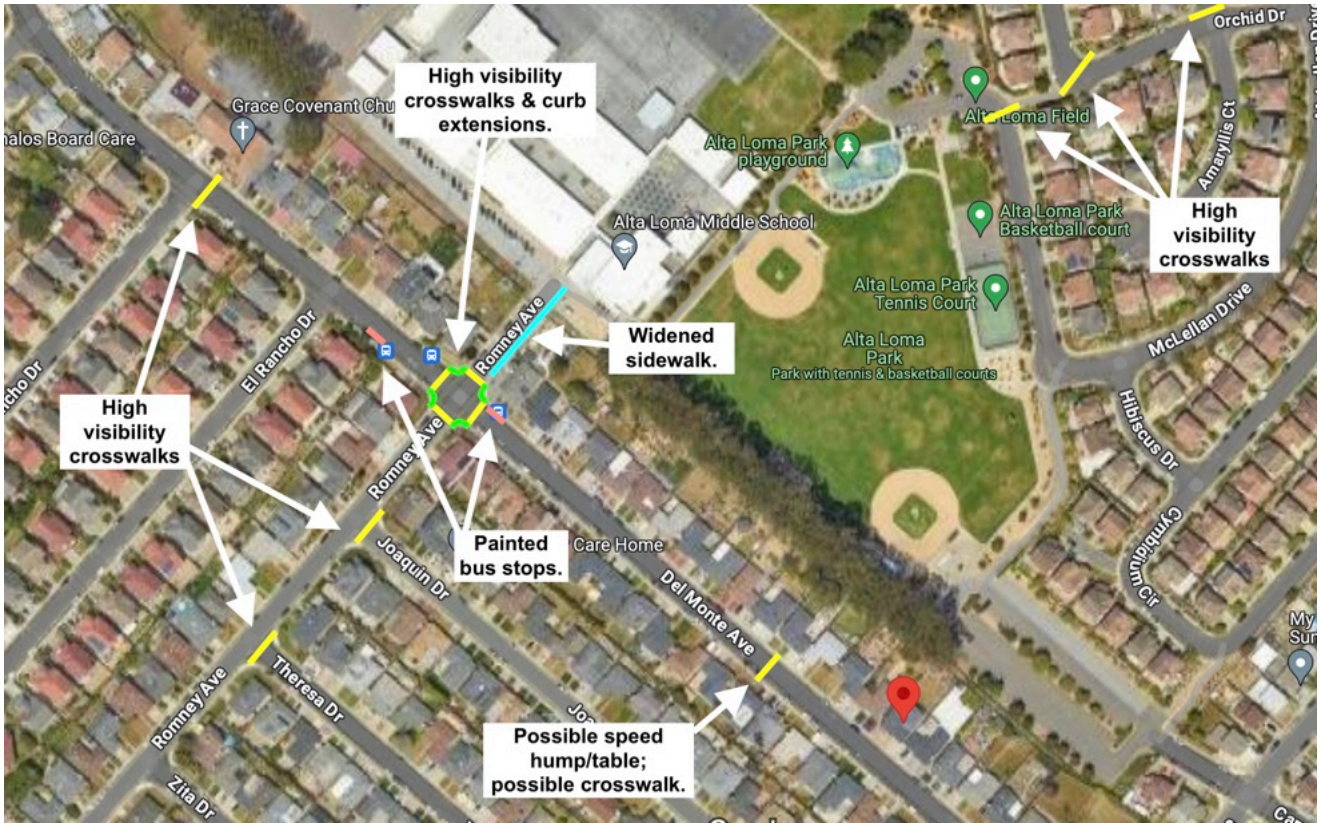
Discontinue vehicle access to the teacher parking lot at dismissal. The traffic in the teacher lot is heavy, and not always well organized. People come in, park, leave their vehicles to get their students, and then try to maneuver out, creating two exit lanes. The group suggested that the ultimate solution is to close off this parking lot with cones or a gate during dismissal and only allow access to those with a pass such as teachers, those accessing handicapped parking, or with a temporary pass because they are delivering to the building's side entrance. It may be beneficial to share photographs of the challenging conditions here (example at right) to convince parents of the need for this change.



Conclusion

It is imperative that a collaborative working group be established to advance these recommendations (summarized on simple schematic maps on the next page). Both Alta Loma Middle School and Buri Buri Elementary School officials must maintain close contact with parents, community leaders, and the team from the South San Francisco Department of Public Works (DPW), which was very supportive during the workshop. The combination of two schools' advocacy, DPW involvement, and the existence of the city's *Active South City* (pedestrian and bicycle) plan identifying this as a priority route to become a bicycle boulevard should help move this work along, particularly the lower cost and easier near term recommendations. Both schools would benefit from joining forces in keeping the existing city plan and these important recommendations in front of city officials, as they will benefit not just the schools but the residents of the surrounding neighborhoods and all users of these roadways.

Special thanks to the full South San Francisco DPW team for their support, and Angel Torres specifically for a number of photos used in this report.


High visibility crosswalks & curb extensions.
Grace Covenant Chu
Alta Loma Field
Orchid Dr
Alta Loma Park playground
Alta Loma Park Basketball court
High visibility crosswalks
Alta Loma Middle School
Alta Loma Park Tennis Court
Widened sidewalk.
Alta Loma Park
Park with tennis & basketball courts
McLellan Drive
Romney Ave
El Rancho Dr
High visibility crosswalks
Painted bus stops.
Care Home
Joaquin Dr
Del Monte Ave
Theresa Dr
Possible speed hump/table; possible crosswalk.
Zita Dr


Mini-circle & high visibility crosswalks
San Felipe Ave
Camaritas Ave
Recommended new high visibility crosswalk w/ curb extensions.
Joaquin Dr
Los Flores Ave
El Campo Dr
Del Monte Ave
Nyla Ave
Kazakoff's Painting
Basketball Courts
Hope United Methodist Church
Buri Buri Elementary School
Painted & delineated pedestrian path along edge of parking lot.
Omine Karate Dojo
Baseball Field
High visibility crosswalks & curb extensions
Indio Dr
Serra Dr
Recommended new location for Boys & Girls Club Bus
Modern Education

References and Resources

Active South City: South San Francisco's Pedestrian and Bicycle Master Plan; 2022. Outstanding comprehensive plan with detailed recommendations, including a bicycle boulevard along Del Monte Avenue. https://www.ssf.net/home/showpublisheddocument/28257/638041156435630000

The National Center for Safe Routes to School; extensive practical traffic safety and programmatic information downloadable resources: www.saferoutesinfo.org

The Safe Routes to School National Partnership; coalition of organizations and experts providing great implementation support to schools & communities: www.saferoutespartnership.org

Complete Streets: National coalition working for streets that work for pedestrians, bicyclists, transits riders, and drivers of all ages, incomes, and abilities: http://www.completestreets.org

Quick Build Guide: How to Build Safer Streets Quickly and Affordably. Practical guide to low-cost 'quick-build' techniques to increase pedestrian and bicycle safety and accommodation. Alta Planning and the California Bike Coalition; 2020.
https://altago.com/wp-content/uploads/Quick-Build-Guide-White-Paper-2020-1.pdf

The Pop-Up Placemaking Tool Kit, an exceptionally practical how-to guide for low-cost traffic calming, safety, and place-making demonstrations from the AARP. https://www.aarp.org/livable-communities/tool-kits-resources/info-2019/pop-up-tool-kit.html

Slow Your Street: A How-to Guide for Pop-Up Traffic Calming. Trailnet's excellent practical guide with design, implementation, promotion, and evaluation tips on demonstration projects. https://trailnet.org/tag/plan4health/

The Tactical Urbanist's Guide to Materials & Design, by the Streets Plan Collaborative. Downloadable for free. http://tacticalurbanismguide.com

Small Town and Rural Multi-Modal Networks. Outstanding resource for low cost neighborhood-scale traffic calming and safety measures, with lots of relevant images and information. (Federal Highway Administration 2017.) Downloadable for free. https://www.ruraldesignguide.com

Urban Street Design Guide and the *Urban Bikeway Design Guide of* the National Association of City Transportation Officials (NACTO; ~$50 each). https://nacto.org/publication/urban-street-design-guide/

Guidebook for Developing Bicycle and Pedestrian Performance Measures (Federal Highway Administration 2017). *D*ownloadable for free. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/performance_measures_guidebook/pm_guidebook.pdf